

TEN YEAR COMPREHENSIVE DEVELOPMENT PLAN

PREPARED FOR:

BENGAL TOWNSHIP
Clinton County, Michigan

PREPARED BY:

COMMUNITY PLANNING SERVICES

P.O. Box 4971
East Lansing, MI 48826
(517) 336-6044
August, 2001

ACKNOWLEDGEMENTS

This report was prepared by Community Planning Services. We wish to thank and acknowledge the many individuals within the Township and County agencies who have offered assistance throughout the preparation of this Comprehensive Development Plan.

We especially wish to thank:

The Members of the Board of Trustees of Bengal Township:

Mr. Eric Mohnke, Supervisor
Ms. Arleita M Schafer, Clerk
Ms. Suzanne Williams, Treasurer
Ms. Marilyn Irrer, Trustee
Mr. Kenneth A. Thelen, Trustee
Ms. Jane Knight*
Mr. Kenneth M. Miller*

*Former Member

The Members of the Bengal Township Planning Committee:

Mr. Tom Irrer, Chairperson
Mr. Kenneth Thelen
Mr. Gerald Thelen
Mr. Gary Cooper
Mr. Ken Nobis
Mr. Eric Mohnke
Mr. Dale Kuenzli
Ms. Deb Schafer
Ms. Marie Thelen
Mr. Benard Thelen
Mr. Clair Armbrustmacher

Mr. Gary Wheeler of G & J Drafting for the creation of the future land use map;

Mr. Jeremy Vermeer, Clinton County GIS Office for the creation of the current land use maps included in this document;

Mr. Steve Law of the Natural Resources Conservation Service for his creation of the soils map and his technical assistance;

TABLE OF CONTENTS

ACKNOWLEDGEMENTS	ii
TABLE OF CONTENTS	iii
LIST OF MAPS AND ILLUSTRATIONS	vi
LIST OF TABLES AND CHARTS	vii
BACKGROUND AND PERSPECTIVE (To Be Inserted)	I-1
Township Land Use Planning in Michigan	I-1
Mission of the Bengal Township Comprehensive Development Plan	I-2
Glossary of Terms	
POPULATION PROFILE	II-1
Introduction	II-1
State of Michigan	II-1
Lansing Tri-County Area	II-1
Clinton County	II-1
Bengal Township	II-2
Age	II-2
Racial and Ethnic Composition	II-2
Household Composition	II-2
Education	II-3
HOUSING PROFILE	III-1
Introduction	III-1
Age and Number	III-1
Value of the Housing Stock	III-1
Occupancy	III-1
New Housing Starts in the 1990s	III-1
ECONOMIC PROFILE	IV-1
Introduction	IV-1
Income	IV-1
Labor Force/ Employment	IV-1
Employment by Industry	IV-2
Employment Forecasts	IV-3
LAND USE PROFILE	V-1
Introduction	V-1
Procedure	V-1
Land Use Definition	V-2
Agriculture	V-2
Residential	V-3
Commercial and Industrial	V-3
Public Lands	V-3

Zoning Districts	V-3
Prime and Unique Farmland	V-4
Woodlands and Wetlands	V-5
COMMUNITY FACILITIES	VI-1
Introduction	VI-1
Township Land and Facilities	VI-1
Educational Facilities	VI-3
County Drains	VI-4
Road System	VI-4
Community Health	VI-5
Health Care Facilities	VI-5
Religious Institutions	VI-5
Utilities	VI-6
NATURAL FEATURES	VII-1
Introduction	VII-1
Soils	VII-2
Water	VII-4
Conclusion	VII-9
GOALS, POLICIES AND OBJECTIVES	VIII-1
Mission Statement	VIII-1
Agricultural Land Preservation	VIII-2
Rural Environment	VIII-4
Natural Resource Management	VIII-5
Non-Residential Development	VIII-6
Community Facilities and Infrastructure	VIII-7
Governmental Coordination.	VIII-8
FUTURE LAND USE PATTERNS	IX-1
Regional Perspective	IX-1
Future Land Use Categories	IX-1
IMPLEMENTATION TOOLS	X-1
Zoning Ordinance	
Subdivision Regulation	
Capital Improvements Program	
APPENDICES:	
-P.A. 116 Summary Table	
-Bengal Township Community Survey Summary	
-Michigan County and Township Planning Acts	
-2000 U.S. Census Updates	

LIST OF MAPS AND ILLUSTRATIONS

Location Map, Clinton County, Michigan	I-4
Agricultural Land of Bengal Township	V-6
Residential Land of Bengal Township	V-7
Commercial, Industrial, Public Land of Bengal Township	V-8
Zoning Map	V-9
Clinton County Drain Map	VII-2
Watershed Map	VII-12
Natural Features Map.	VII-13
Future Land Use Map	IX-4

LIST OF TABLES

Table 1--Employment by Industry	IV-2
Table 2--Bengal Township Land Use	V-2
Table 3--Prime and Unique Farmland Acreage Totals	V-4.

LIST OF CHARTS

Chart 1--Number of New Homes	III-2
Chart 2--Woodlands and Wetlands	V-5

BACKGROUND AND PERSPECTIVE

The Clinton County Planning Commission is established under the authority of the County Planning Act 282 of the Public Acts of Michigan, 1945, as amended. Act 282 establishes the following direction to the Planning Commission with respect to the purpose of the master plan:

It shall be a function of the county planning commission to make a plan for the development of the county, which plan may include planning in cooperation with the constituted authorities for incorporated areas in whole or to the extent to which, in the commission's judgment, they are related to the planning of the unincorporated territory or of the county as a whole. The plan with accompanying maps, plats, charts, and all pertinent and descriptive explanatory matter shall show the planning commission's recommendations for the development of the county. In the preparation of a county development plan, the planning commission shall make careful and comprehensive studies of the existing conditions and probable growth of the territory within its jurisdiction. Such plan shall be made with the purpose of guiding and accomplishing a coordinated, adjusted and harmonious development of the county which will be in accordance with present and future needs for best promoting the health, safety, morals, order, convenience, prosperity and general welfare of the inhabitants, as well as for efficiency and economy in the process of development...

The complete text of the County Planning Act 168 is reprinted in the Appendices section of this document.

Bengal Township is located in Clinton County, Michigan. The county is located in the central portion of the lower peninsula of Michigan and is comprised of 16 townships, 3 charter townships, two cities and six villages.

The predominant land use in Clinton County is agriculture with significant residential development occurring within the last twenty-five year period. This residential development trend is significant for Clinton County because from 1982 to 1992, more than 10,000 acres of farmland has been lost. Many have been converted to residential land use. Because the agricultural industry plays such a substantial role in the economic vitality of the county (total agricultural income in 1991 was in excess of \$83 million), it is imperative that more emphasis be given to land use policy and the relationship between reasonable accommodation of new residential and non-residential development and the preservation of unique and prime agricultural land.

Toward that end, the Bengal Township Planning Committee has been preparing a set of goals, policies, and objectives as part of a Comprehensive Development Plan which will be recommended to the Clinton County Planning Commission for adoption. Goals, Policies, and Objectives are established for Agricultural Land Preservation, Rural Environment, Natural Resource Management, Non-Residential Development, Governmental Coordination, and Community Facilities and Services. The Planning Commission has adopted the following overall Mission

Statement for the Comprehensive Plan:

To plan and implement an environmentally and fiscally responsible pattern of future land use for Bengal Township which has the following five objectives;

- 1. Provide for the preservation of agricultural activities and associated open space characteristics within the township.**
- 2. Maintain and enhance the rural residential quality of life currently existing within the township.**
- 3. Emphasize cooperation and coordination between local governmental jurisdictions (Clinton County and adjacent townships) on land use planning, environmental, and basic service issues.**
- 4. Encourage Clinton County to emphasize cluster residential development and other land preservation options in various zoning ordinance amendments.**
- 5. Provide for the continuation and reasonable expansion of the existing non-residential land uses within Bengal Township.**

GLOSSARY OF TERMS UTILIZED IN THE PLANNING PROCESS

To assist the reader in utilizing this planning document, the following commonly applied planning terms have been generally defined.

Capital Improvements Program - A locally adopted document which prioritizes public investment for land, infrastructure, equipment, and buildings. This document is considered one of the three major implementing tools (along with the zoning ordinance and the subdivision regulations) of the Comprehensive Development Plan.

Cluster development - Grouping houses on part of a property while maintaining a large amount of open space on the remaining land.

Comprehensive Development Plan - Also called the master plan, is a document composed of maps and text which describes the present and future residential, business, industrial, community facilities, circulation and physical characteristics of the township. It sets forth policy guidelines and an agenda for future development and improvement of the community.

Conservation easement - A legal document that restricts the use of land to farming, open space, or wildlife habitat. A landowner may sell or donate an easement to a government agency or a private land trust.

Density - The number of buildings or housing units on a particular area of land (usually measured by acre).

Development Objectives - Development objectives are long range statements of specific activities which must be implemented in order to achieve corresponding policy statements.

Development right - The right to develop land, which is one of several rights that come with land ownership. The development right may be sold or given away separately from other rights. If the development right is removed, the land is still private property, though the uses that are allowed are typically limited to farming or open space.

Farm/Farmland - Land and buildings devoted to the production of crops and/or livestock. The Clinton County Zoning Ordinance defines a farm as: A parcel of land containing at least forty (40) acres which is used for agricultural purposes, but which the raising of fur bearing animals, livery or boarding stables and dog kennels are not included. The U.S. Census of Agriculture defines a farm as producing at least \$1,000 a year in crops and/or livestock.

Geographic Information System (GIS) - A method of placing data into a computer to create a map or a series of maps. Data might include: soils, parcels, roads, waterways, buildings and zoning districts.

Goal - A goal is a very broad and general statement which represents the citizen's view on what they would like the township to be. The goals provide the basic framework for planning, budgeting of tax dollars, and provision of services.

Growth management - The use of regulations and incentives to influence the rate, timing, location, density, type, and style of development in the community.

Housing Units - A building or portion thereof, designed for occupancy by an individual or family for residential purposes and having kitchen and bathroom facilities.

Keyhole Development - Also called "Funnel Development." The development of a large parcel of property that has a relatively small, narrow frontage on an adjacent body of water. The access is intended for use by many more persons than similar frontage from a typical lot would allow.

Land trust - A private nonprofit organization that qualifies as a charitable organization under Section 501 (c)(3) of the Internal Revenue Code. A land trust may receive donations of property, development rights, or money. Donations may qualify as tax deductions. A land trust may also purchase property and development rights.

Land use - The function to which land is put or is classified for future uses; that is for housing, agriculture, commercial, industrial, etc.

Lot - A piece of land divided from a larger parcel.

Maximum lot size - The largest size lot allowed for a nonfarm dwelling in an agricultural zone, such as a 2-acre maximum lot size.

Minimum lot size - The smallest lot or parcel that can be built on in a particular zoning district. Also, the smallest lot that can be created by dividing a larger parcel.

Multiple Family Housing - A single building or series of buildings with abutting walls containing more than two residential dwelling units.

Planned Unit Development - A type of development characterized by comprehensive planning for the project as a whole, clustering of structures, a mixture of housing types and sometimes a variety of non-residential uses as well which is permitted by the *Township Rural Zoning Act* (P.A. 184 of 1943, as amended; MCLA 125.286c).

Open Space - Land that is either undeveloped or is relatively free of buildings and other structures. Although open space is often thought of as public parks and playgrounds, it includes all land that acts as a contrast to the man-made environment. In suburban and rural areas, open

space preserves ecologically important natural environments, helps to limit urban growth and acts as a land bank for future development.

Planning Commission - An official panel appointed by the governing body of a city, township, or county that is responsible for drafting the comprehensive plan, the zoning ordinance, and subdivision regulations. The planning commission reviews proposed changes to the zoning and subdivision regulations and makes recommendations on the comprehensive plan, ordinances, and development proposals to the governing body.

Platting - The partitioning or dividing of a parcel of land which is recorded, mapped and charted with the County Plat Board in preparation for development. Replatting is a process of changing the boundaries of a recorded plat.

Policy - A general application of the goals and objectives. These will indicate general uses of land in terms of where people live, work, shop and play and how they travel.

Prime agricultural land - Farmland that has a gentle slope and well-drained soils and requires a minimum of conservation practices. It is the easiest land to farm. Class I and II soils, as defined by the Natural Resource Conservation Service of the U.S. Department of Agriculture, are considered prime agricultural soils.

Purchase of development rights (PDR) - The voluntary sale of the rights to develop a piece of property by the landowner to a government agency or a land trust. The sale price is determined by an appraisal. The land is restricted to farming or open space.

Sprawl - Residential and commercial development that may take either of two forms: 1) a wave of urban or suburban expansion; or 2) scattered housing, offices, and stores throughout the countryside.

State Equalized Valuation - This is the value of real property (real estate) as determined by the State of Michigan for all land and development within the local jurisdictions and is the basis for local tax assessment of land value.

Street/Road - A public/private way or right of way used for the movement of people and goods that provides vehicular and pedestrian access to abutting properties.

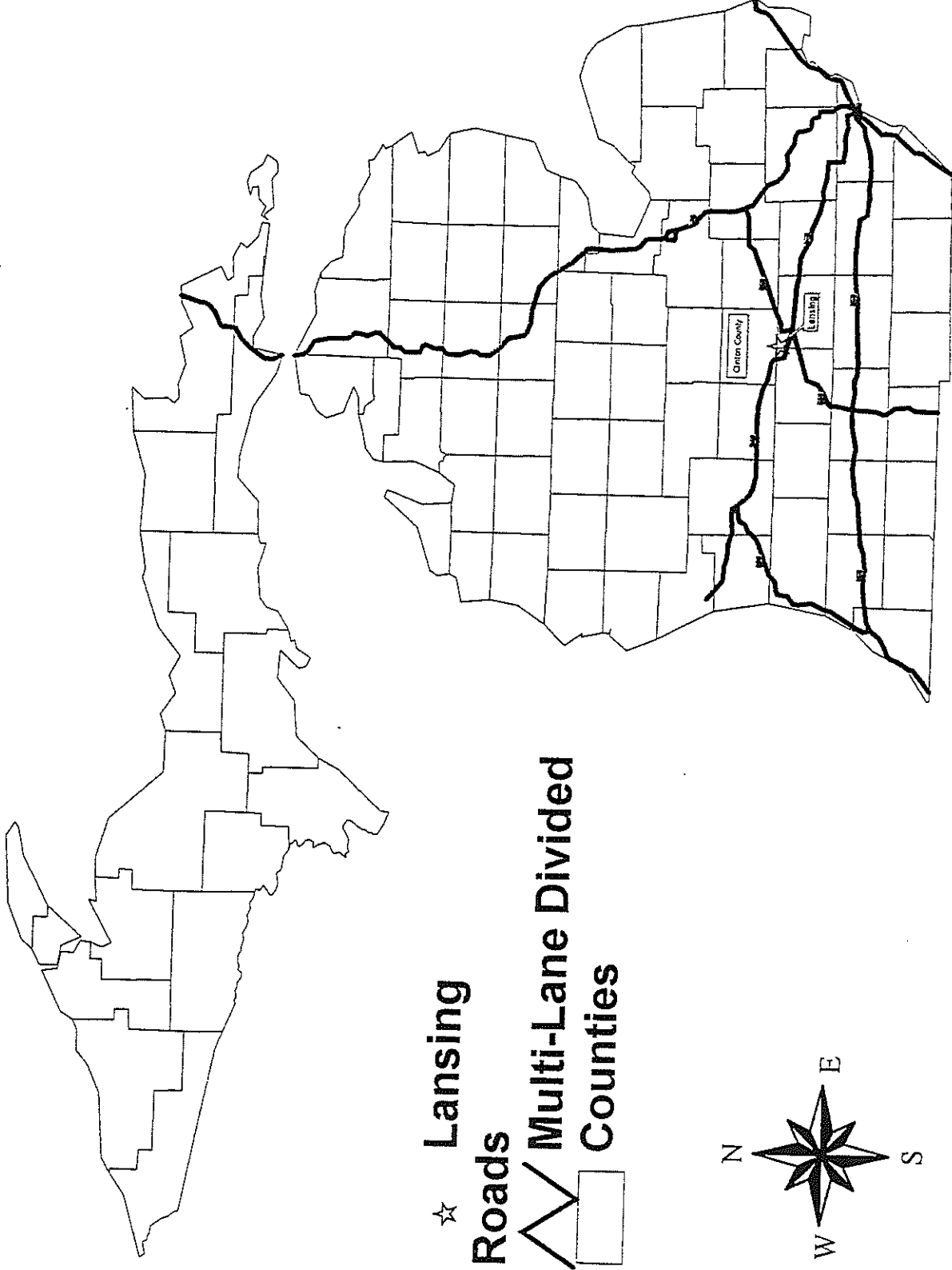
Subdivision - The division of a parcel of land into lots for future sales and/or development. The subdivision of land in Michigan is regulated by P.A. 591 of 1996 entitled the Land Division Act which defines three types of land division: *exempt splits*, *divisions*, and *subdivisions*. *Subdivisions* must be platted while *exempt splits* are actually exempt from any review process and *divisions* must go through a simplified approval process.

Transfer of development rights (TDR) - Property rights that may not be used on the land from which they come. TDRs may be sold to be used on a designated site in a receiving (growth) area. When TDRs are sold, the land they came from is then restricted to farming.

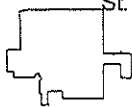
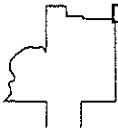
Zoning - The division of the community into districts to regulate the use of land and structures, create order for the physical development of land, and to minimize potential conflicts.

Zoning ordinance - A set of land use regulations and a map adopted by the local governing body to create zoning districts that permit certain land uses and prohibit others. Land uses in each district are regulated according to type, density, height, and the coverage of buildings.

Clinton County Michigan



Bengal Township - Clinton County, Michigan

LEBANON	ESSEX	GREENBUSH	DUPLAIN
DALLAS	BENGAL	<div><div><div>St. Johns</div></div><div>BINGHAM</div></div>	OVID
WESTPHALIA	RILEY	OLIVE	VICTOR
EAGLE	WATERTOWN	<div><div><div>Dewitt</div></div><div>DEWITT</div></div>	BATH



POPULATION PROFILE

Introduction

This profile is a tool to describe both local population trends and the township's relationship to the region. The information, once gathered, provides a multi-dimensional description of Bengal Township including numbers, ages, heritage and education. The information is used to help identify current needs and to anticipate those of the next twenty years in areas such as roads, schools, recreation, and land use. The population profile paints a picture of the people in Bengal Township.

State of Michigan

Recent figures from the U.S. Bureau of the Census estimate that the State of Michigan's population was 9,817,242. in July, 1998. During the decade of the 1990s, the State's population appears to have experienced steady growth through July, 1998, totalling 5.62%. The *Michigan Population Update* published in March, 1997, makes the following observations about the State's population trends over the past several decades:

...Michigan's population growth has been below the national average since 1970. During the severe recession in the early 80s, Michigan even experienced some population loss. Since then and especially after 1993, Michigan's population growth rate has grown closer to the national average

Preliminary population projections from the U.S. Census Bureau anticipate a continued increase in population at the State level through the year 2020.

Lansing-East Lansing MSA

The Lansing-East Lansing Metropolitan Statistical Area (MSA) is made up of Clinton, Ingham and Eaton Counties. The population for this area was 432,684 in 1990 and is estimated at 449,638 as of July, 1998. Over the eight year period, population grew by 3.93% according to estimates of the U.S. Census Bureau. However, population estimates indicate a peak in 1995 at 453,796 and a constant decline through 1998.

Clinton County

Clinton County's population rose 15% between 1970 and 1980 and another 3.5% from 1980 to 1990. The County's population was 57,893 in 1990 according to the U.S. Census Survey. From 1990 to 1998, the Census Bureau estimates that the county's population has increased 8.66% to a total population of 63,379. Statistically, this is an average of 1.1% per year and annual estimates vary less than 0.5%. Each annual estimate, therefore, indicated a small population increase. Over half of the population of Clinton County is concentrated in the Townships of Bath, DeWitt (including DeWitt City) and Bingham (including the city of St. Johns). These more urbanized

areas grew at a rate which was close to or slightly above the County's average with the exception of St. Johns. According to Census Bureau estimates, the City of St. Johns had almost no change in overall population from 1990 to 1998. The six villages in the County all had an estimated population change below the average (only the Village of Westphalia was estimated to have an overall population loss). The U.S. Census Bureau estimates that each of the townships grew in population by approximately 10% between 1990 and 1998.

Bengal Township

The population of Bengal Township was 989 according to the 1990 U.S. Census Survey. In the decades before, population was 1005 in 1970 and increased by 62 persons for the 1980 count of 1067. The drop in the 1980's of 78 persons was a 7% decrease. Projections done by the U.S. Census bureau for the 1990s indicate a reversal of this trend. The population estimate for July, 1998 is 1,104 persons--an increase of 115 persons or 10.42% from the April, 1990 Census count.

Age

The age information available from the 1990 census indicates the median age of the population was 30.9 years. Almost one-third of the population was under 18 years of age and 9% were 65 years or older. The age distribution from the 1990 Census is included in chart form as an appendix to this document.

Projections for age distribution are not available at the township level but those at the County level are observed here as representative of 1990 trends. Projections by the Office of the State Demographer for Clinton County for the year 2000 estimate that the median age increase from 32.3 in 1990 to 36.2 in 2000. At the county level in the 1990s, the age distribution of residents remained almost identical from birth to age 44. The population increase between 1990 and 2000 occurred among people age 45 and older. The most dramatic increase in the 1990s was in the category "45-59" where the population increased by approximately 40%. This is a sign that the "baby-boomer" population group is moving toward retirement age. As this trend continues over the next 20 years, it will impact both economic and social trends.

Racial and Ethnic Composition

The racial profile of Bengal Township according to the 1990 Census is almost completely contained in the category *White*. The only exception is the category *Hispanic origin (of any race)* which lists eight (8) persons--less than 1% of the population. In the category of "Ancestry", over half of those responding indicated a German ancestry.

Household Composition

There were 304 households counted in Bengal Township by the 1990 Census survey. Of these, a large majority were family households (87.5%). Of the family households, most were married-couple families (81.6%). There were 38 non-family households and 32 of these were a

householder living alone. Just over half of these were 65 years of age or over.

The 1990 Census counted 371 people (37.5%) as living on a farm in 1990. Also, the average number of persons per household was 3.25. There were no persons reported living in group quarters.

Education

The 1990 U.S. Census reports that there were 578 persons in Bengal Township who were at least 25 years old. Of this group, 82.2% had completed high school or higher and 9.9% had completed a bachelor's degree or higher. These are similar to the County's statistics of 83.7% completing high school or higher and 14.6 completing a bachelor's degree or higher.

With regard to school age children, the number of children reported as enrolled in elementary or high school (246) was very close to the number reported in the population age 5 to 17 years (249) indicating that most school-aged children are in school. Of those enrolled in elementary or high school, 9.8% were enrolled in a private school.

HOUSING PROFILE

Introduction

To paint the overall picture of the growth trends in Bengal Township, it is important to look not only at the number of people and households, but at the dwelling units as well. Housing is an indicator of both growth patterns and the economy . It is also a major land use issue. The age and condition of the housing stock and the value of homes within the township can all help to identify trends, anticipate future growth and help in making future land use decisions.

Age and Number

According to the 1990 U.S.Census survey, in April of that year there were 313 housing units in Bengal Township. All of them were single unit structures with 98% of them being *detached* one-unit structures.

Two-thirds of the housing structures (195) were over fifty years old in 1990. Another sixty homes (20%) were built during the 1970s. Twenty seven homes were built during the 1980s. Almost all of the housing stock was reported to have three bedrooms or more. In fact 30% had four bedrooms and 20% had five or more bedrooms. All of the homes were served by on-site septic and water systems.

Value of the Housing Stock

The 1990 Census surveyed 131 owner occupied housing units and reported that three quarters of them were valued between \$50,000 and \$99,000. Another 20% were valued at less than \$50,000 and six units were valued at \$100,000 or more.

Occupancy

Of the 313 total housing units counted in the 1990 U.S. Census survey, 304 units or 97% were occupied. Ninety (90%) percent of these were owner occupied and ten (10%) were renter occupied. Nine units were vacant and none were counted as seasonal or recreational use. Vacancy rates indicate that only one of the vacant homes was available for purchase.

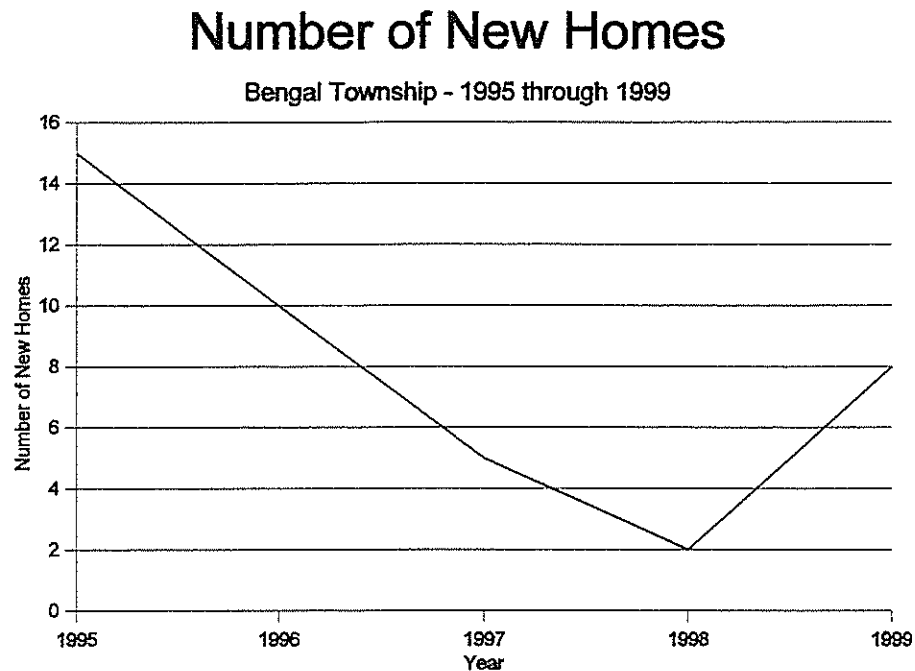
The statistics given by the U.S. Census survey of persons per occupied unit are similar for owner- and renter-occupied units. Owner-occupied units reported 3.22 persons and renter-occupied was 3.53 persons.

New Housing Starts in the 1990s

Now that the year 2000 has arrived, we can bring the estimated number of housing units up to date from the 1990 Census count. This can be done from building permit records with some degree of accuracy. In Bengal Township, permit information for the 1990s was available from

1995 through 1990 from the County Building and Zoning Office. Information for these five years will show a trend from which we can estimate the number of new housing units in the 1990s. The information is shown in graph form below.

Chart 1



New housing units per year ranged from a high of 15 in 1995 to a low of 2 in 1998. The average number of new housing units per year over the past five years is 8.

To estimate the total number of housing units in the township, the average number of housing units can be used for the years 1991 to 1994. The Census reports that there were 313 housing units in the township in 1990. Using permit data and estimates, it is possible to calculate with reasonable accuracy that at the end of 1999 there were 76 new housing units in the township since 1990 for a total of 389 units. This is an increase of 24% during the 1990s.

ECONOMIC PROFILE

Introduction

Economic information can provide a unique and specific community description. The use of statistics to describe income, employment trends and the size of the labor force makes it possible to observe trends over time. Also, comparing economic statistics at the local, County and regional level can provide a picture of how the local community measures up to the area surrounding it.

Income

According to the 1990 Census Survey, median household income in Clinton County in 1989 was \$36,180. Median family income was slightly higher (\$40,234) and non-family income was significantly lower (\$19,443). In Bengal Township, numbers followed the same pattern. Median household income (\$37,237), median family income (\$41,964) and median nonfamily income (\$23,750) were all slightly higher than the County averages.

The 1990 Census survey also showed that in 1989, per capita income was \$14,153 in Clinton County and \$12,886 in Bengal Township (The difference is likely due to the higher number of persons per household in Bengal Township). A publication entitled *Bearfacts*¹ reports that in 1987, the per capita personal income (PCPI) in Clinton County was \$13,986. By 1997, however, Clinton County's PCPI had risen to \$21,666. This was 87% of the State of Michigan's average (\$24,956) and was an increase of 155% in ten years!

The *Bearfacts* publication for 1987-1997 also notes that earnings of persons employed in Clinton County increased between 1987 and 1997 at an annual growth rate of 6.7%. In the State of Michigan as a whole during that same time, earnings rose by an annual growth rate of 5.3%.

Labor Force / Employment

As of May, 2000, Clinton County is ranked third and shares the lowest unemployment rate in the State (1.5%) with two other counties as reported by the Michigan Department of Career Development. Eaton County is ranked fourth (1.7%) and Ingham County is ranked sixth (2.0%). The unemployment rate for the State of Michigan is listed as 2.9% in the same report. At the end of 1999, the Lansing-East Lansing MSA annual average unemployment rate was 2.4%, Clinton County's was 2.3% and Bengal Township's was 1.7%. Unemployment rates have dropped slightly from the U.S. Census Survey ten years ago.

Also, over the past ten years, the size of the labor force has increased significantly at the

¹The *Bearfacts* Report is prepared by the Regional Economic Information System in the Bureau of Economic Analysis.

Township and County levels while remaining almost unchanged in the Tri-County area. From 1989 to 1999, the size of the labor force in Bengal Township increased 14.5% and Clinton County's labor force increased 13.6% during the same time period. Both showed a continued increase in size over time. The Tri-County area, however, experienced an overall increase of 2.2% in the size of its labor force and dropped in size at some points over the ten year period.²

Employment by Industry

The increase in population, the increase in the size of the labor force and the decrease in the unemployment rate indicate an expansion in employment possibilities for residents of Bengal Township. The 1992 Economic Census showed employment distributed between the following categories as follows:

Table 1: Employment by Industry		
	Clinton County	Lansing-E.Lansing (MSA)
Retail Trade	39%	36%
Wholesale	10%	8%
Manufacturing	30%	31%
Service Industries	21%	25%

Bengal Township, according to the 1990 U.S. Census Survey, had a concentration of people employed in *Manufacturing, durable goods* (19%), *Retail Trade* (12.4%), and *Educational services* (10%) which is a sub-category of the service industry listed above.

The category titled *Agriculture, forestry, and fisheries* was also a significant employment industry in Bengal Township. It accounted for 15% of the Township's employment in the 1990 U.S. Census Survey. The same Survey placed only 3.8% of the County's workforce in this category. And only 1%-2% of Clinton County's workforce was classified this way during the years 1992-1997.³ Clearly, agriculture is a larger employment factor in Bengal Township than in the County overall.

²Michigan Department of Career Development, Employment Service Agency, Office of Labor Market Information.

³*County Business Patterns*, 1992-1997.

Employment Forecasts

The Office of Labor Market Information has produced forecasts for employment by industry and occupation from 1994-2005 for the Lansing MSA.

The forecast by occupational groups predicts that there will be a 14.5% increase in the total number of occupations and that annually there will be almost 8,500 job openings. The two categories predicted for the largest growth are *Marketing and sales occupations* (21.4%) and *Service Occupations* (21.7%).

The forecast by industry employment predicts that overall employment will increase by 15%. Employment in the service industries is expected to experience the largest growth (25.6%) and only durable goods manufacturing is employment projected to drop (-4.6%).

LAND USE PROFILE

Introduction

The comprehensive planning process is a proactive one which establishes a guide for orderly growth within the community while at the same time making good use of limited public funds and preserving natural resources. The Comprehensive Development Plan culminates in a Future Land Use Map which is developed by "overlying" various types of information about the township. The population, housing and economic profiles presented earlier in the document are each important "layers." The Land Use Profile is another which presents information on how land is being used in the township, how it is zoned, as well as the location of prime agricultural lands, wetlands and woodlands. Only by knowing about the past and the present can good decisions be made about where to go in the future.

Procedure

The Land Use Profile includes maps of current land use, the zoning districts map, prime and unique farmlands and wetlands and woodlands. It also includes observations about properties enrolled in the P.A. 116/Farmland Preservation program. The three current land use maps were developed specifically for this project. The base map information which included parcels was obtained from Jeremy Vermeer, Clinton County GIS Coordinator. Each parcel was identified according to use based on its assessment classification. Use categories include all of the following: agricultural, residential, commercial, industrial and public lands.

Three separate land use maps were created from this information to improve visual clarity in map presentation. They are:

Agricultural Land of Bengal Township: Agricultural parcels are shaded grey.

Residential Land of Bengal Township: Residential parcels are shaded grey.

Commercial, Industrial, Public Land of Bengal Township: Parcels are shaded to show the location of commercial, industrial and public lands

The information is also presented in statistical form in a table later in this section.

Information for all other maps was taken directly from an existing source. The zoning map is a copy of the official zoning map of Clinton County. The prime and unique farmland map was generated directly from the Clinton County Soil Survey. The wetlands and woodlands map was generated directly from 1978 MIRIS (Michigan Resource Information System) data created by the Michigan Department of Natural Resources.

Land Use Definition

For the purposes of this section and the current land use map, land within Bengal Township was classified into one of five categories. For the most part, land use was identified using the assessment classification code for the property. Agricultural properties were identified as such in the assessment role and include active and non-active farmland, open space, pasture and residential areas associated with an agricultural operation. Residential properties were identified as such in the assessment role. Public and semi-public lands are those lands which are open to community use and include parks, government facilities, schools, religious institutions and cemeteries. Commercial properties were identified according to the respective assessment classification codes. Properties classified as industrial for assessment purposes were classified as industrial in this land use section as well.

TABLE 2: BENGAL TOWNSHIP LAND USE--2000		
LAND USE	ACRES	% of TOTAL
Agricultural	21,265	93.21%
Residential	1,428	6.26%
Commercial (10 parcels)	114	0.50%
Industrial	0	0.00%
Public/Semi-Public Lands (3 parcels)	8	0.04%
TOTAL	22,815	100.00%

Agriculture

Almost all of the land area in Bengal Township is used for agriculture--just over 93%. And not only are the parcels agricultural in use, they are also large in size. Looking at the map, it appears that a majority of the agricultural parcels are 80 acres in size and larger. In several instances, there are single parcels which are 160 acres in size. With such a large percentage of land in agriculture, it is not surprising that the agricultural land use map appears as a block of grey. Agricultural parcels are everywhere in the township. The few exceptions are discussed below in the following sections.

Public Act (P.A.) 116 of 1974 entitled *Farmland and Open Space Preservation Act*, allows owners of property defined as "farmland" by the Act to enter into a Development Rights Agreement with the State of Michigan restricting development options on the farmland. In exchange, the property is exempt from special assessments for as well and use of public improvements including sanitary sewers, water, and lights. The owner is also eligible for a credit

against the state income tax or single business tax as defined by the Act. Enrollment in P.A. 116 can be understood as an expressed intent by the landowner to continue an existing agricultural operation. In Bengal Township, there are a total of 11,729 acres of land enrolled in P.A. 116 Development Rights Agreements. This means that 55% of all agricultural land and 51% of all land in the township is enrolled in the P.A. 116 program.

Residential

Residential land use accounts for 6% of land area in Bengal Township--1,428 acres.

Residential development in Bengal Township has occurred as individual lot splits along a County Road. Most sections have only a few residential parcels. Sections 13 and 33 show the most residential land use and in general there is more development in the southeast corner of the township. Eight sections have no residential lots.

Commercial and Industrial

There are four parcels zoned industrial in Bengal Township. Each parcel is adjacent to M-21 and the Central Michigan Railway right-of-way. Two of these parcels are home to an excavating business and a mini-storage facility. The industrial parcels are not contiguous but their location along a State trunkline (M-21) suggests that this transportation corridor may attract other industrial uses to this area in the future.

Public Lands

Bengal Township has a township hall which is located on the southwest corner of Townsend and Francis Roads in Section 21. There are also four cemeteries in Bengal Township. Bengal Township has no public lands or parks. The Clinton County Road Commission owns 94 acres of land in Section 31.

Zoning Districts

With the exception of four industrial parcels, all of Bengal Township is classified in the A-2 Zoning District which is the General Agricultural District. The industrial parcels are located between M-21 and the Central Michigan Railroad line in Sections 15, 16, and 18. Clinton County's Zoning Ordinance text also contains an A-1 District--a Primary Agricultural District--but the district is not applied to the county's zoning map at this time.

The intent and purpose statement in the zoning ordinance for the A-2 District reads in part:

Agriculture, while important in the A-2 District, is not necessarily regarded as a permanent land use. It is therefore also the intent of the County that parcels of

land in this district be rezoned to (a) more intensive use classification when it has been determined that more intensive development is appropriate and when the necessary public utilities are available which are based on a comprehensive land use plan.

Uses permitted in the A-2 District by right are single-family residence, general and specialized farming, public and private conservation areas, public areas such as forest preserves, production of fur bearing animals for profit, family day-care facilities and adult foster care homes for 6 or less residents. In addition to uses permitted by right, there are eighteen (18) uses permitted under special conditions including home occupations, site condominiums, churches and public buildings. There are also thirty-one (31) uses permitted by Special Use Permit which include more intense uses such as Mobile Home Parks, Drive-In Theaters, Mini-Warehousing and Nursing Homes.

Prime and Unique Farmland

The inventory of Prime and Unique Farmlands is created by the Department of Agriculture and the Soil Conservation Service. Its purpose is to identify the extent and location of important rural lands that are being or could be used in agriculture without regard to ownership or present land use. The exceptions are water areas and urban built-up land which are excluded and considered an irreversible use.

Prime farmland is defined by the Soil Conservation Service as land that has the best combination of characteristics for producing food, forage, fiber and oilseed crops. It has the soil quality, growing season, and moisture supply needed to economically produce sustained high yields when treated and managed according to modern farming methods. Unique farmland is land other than prime that is used for the production of specific high value food and fiber crops. Special factors include those listed for prime farmland as well as temperature, humidity, elevation and may include conditions such as nearness to markets that favor growth of a specific crop. Additional farmland of local importance includes those which are nearly prime and that economically produce high yields when treated and managed according to modern farming methods.

TABLE 3

PRIME AND UNIQUE FARMLAND ACREAGE TOTALS		
DESCRIPTION	ACRES	% COVER
Prime Agricultural Soils	25,940.26	89.30%
Unique Agricultural Soils	40.68	0.14%
Neither Prime Nor Unique	3,066.82	10.56%
TOTAL	29,047.76	100%

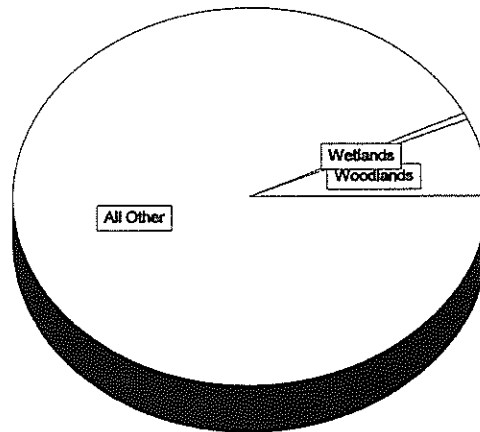
In Bengal Township, 89% of all soils are considered prime agricultural soils. These prime agricultural soils measure 25,940 acres. Unique agricultural soils account for only 0.14% of land area cover (40 acres). The remaining 10% or 3,066 acres are classified as "neither prime or unique."

With regard to physical location, prime agricultural soils cover most of the map. The unique agricultural soil appears five separate locations, none larger than a few acres in size. Land classified as "neither prime or unique" follows the Stoney Creek for the most part.

Woodlands and Wetlands

Wetlands and Woodlands

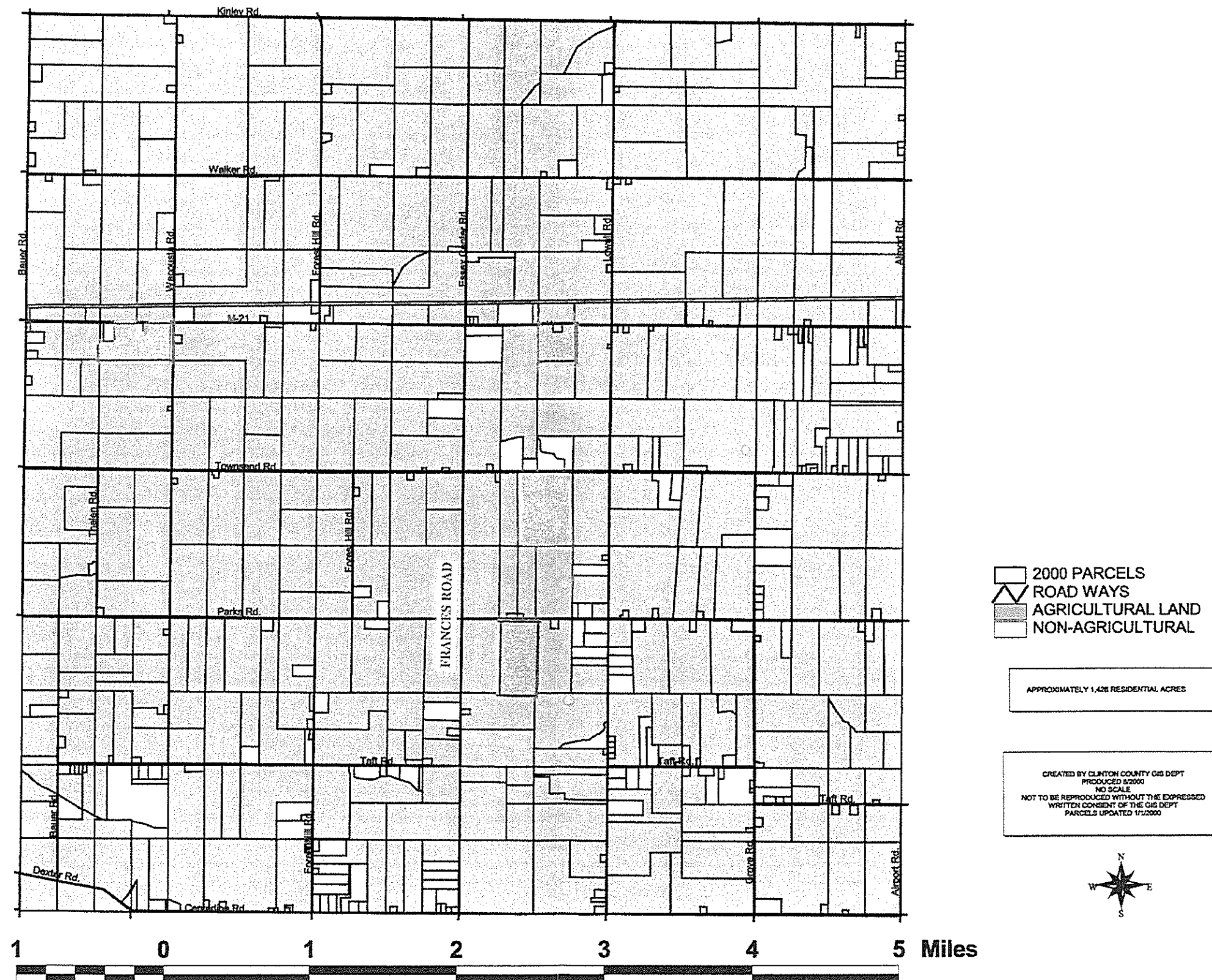
1978 MIRIS Classification



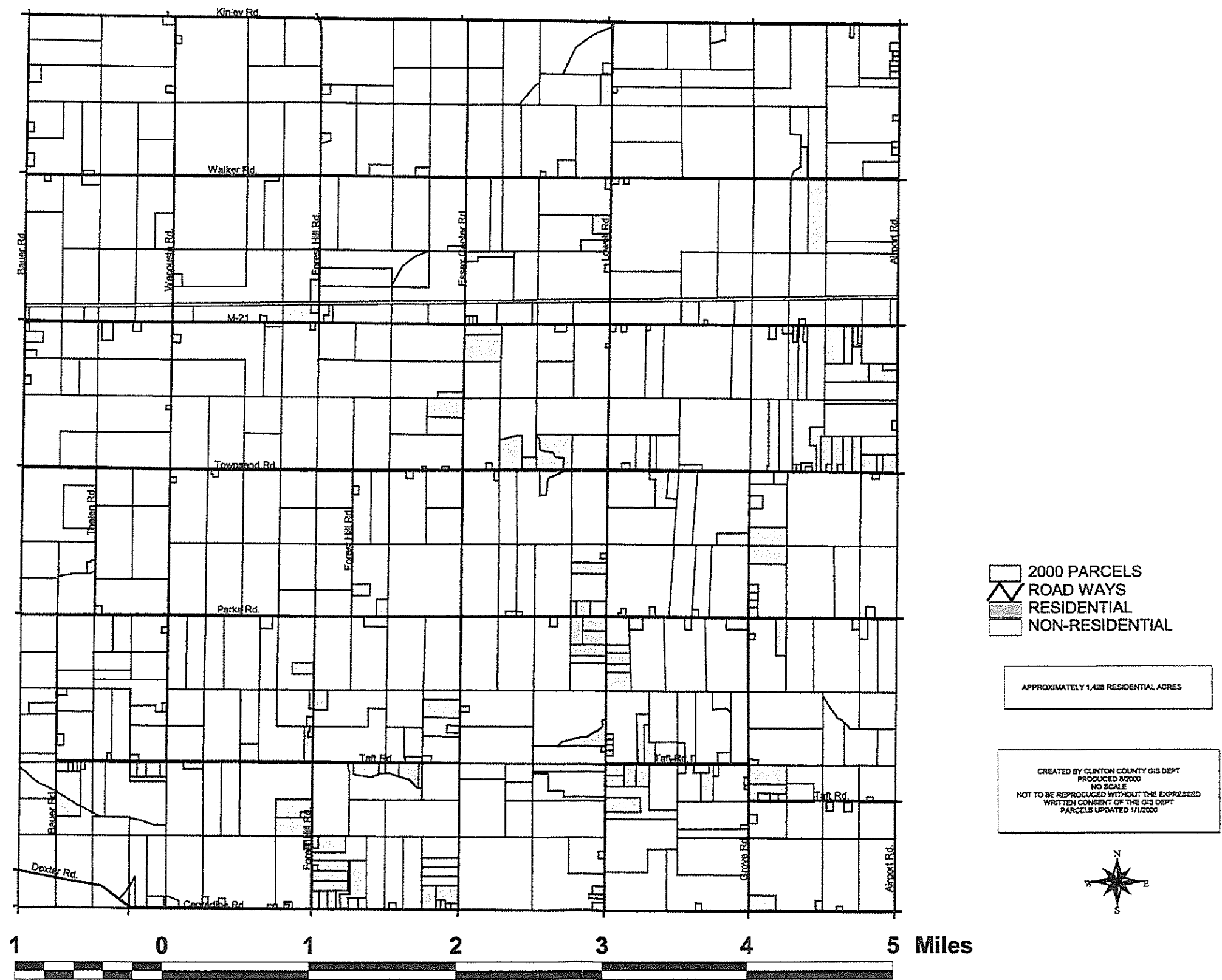
Woodlands and Wetlands data is taken from MIRIS data on land use collected in 1978. Statistical data included in this section was received from the Natural Resources and Conservation Services Office in St. Johns. Although the inventory was made twenty years ago, it is still reasonably accurate since both forest cover and wetland areas change slowly over time.

Woodlands and wetlands in Bengal Township combine to cover approximately 7.25% of the township's land area. Wetlands cover 96.92 acres and account for 0.34% of land area in Bengal Township. Woodlands cover 2,005 acres and cover 6.90% of land area.

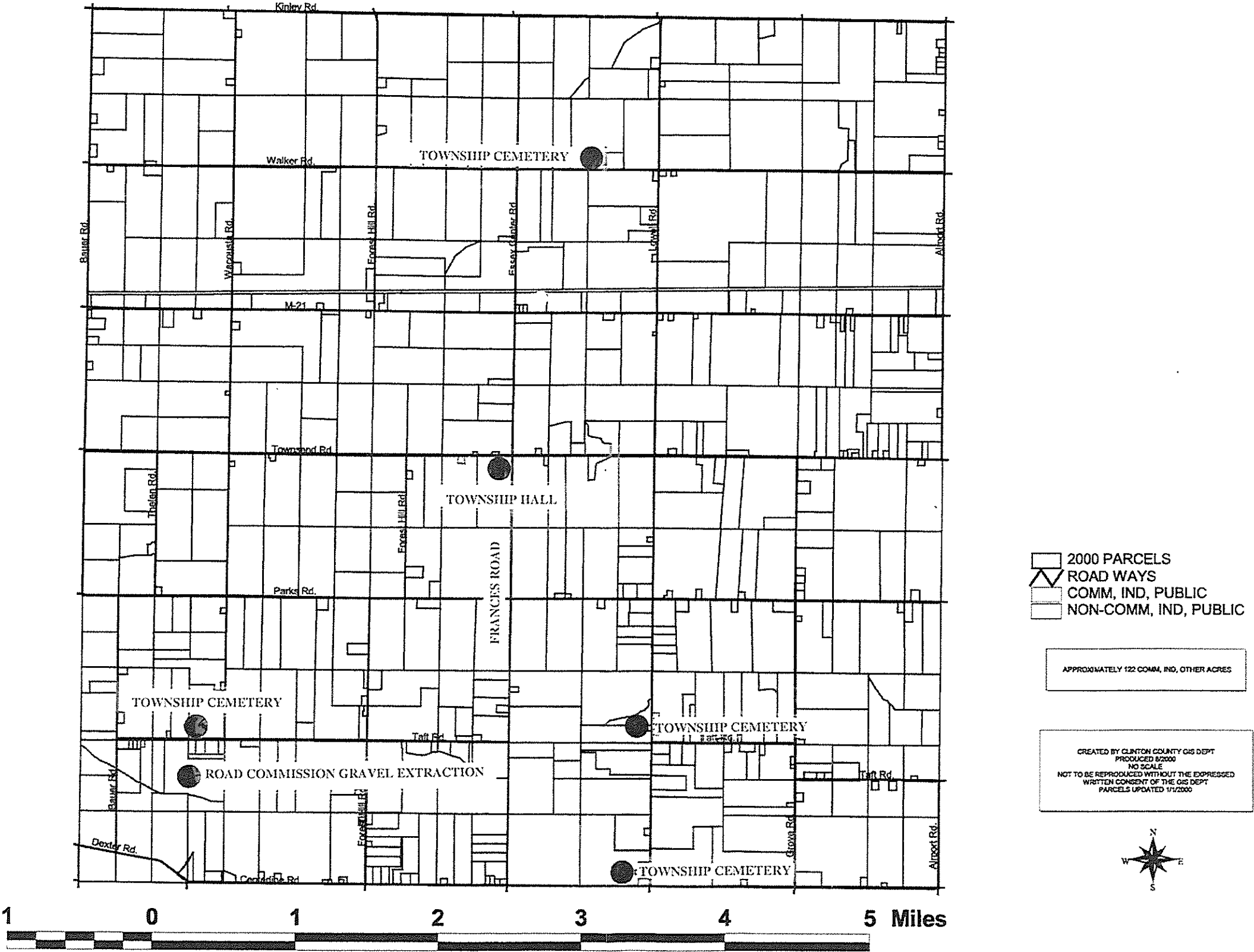
AGRICULTURAL LAND OF BENGAL TOWNSHIP



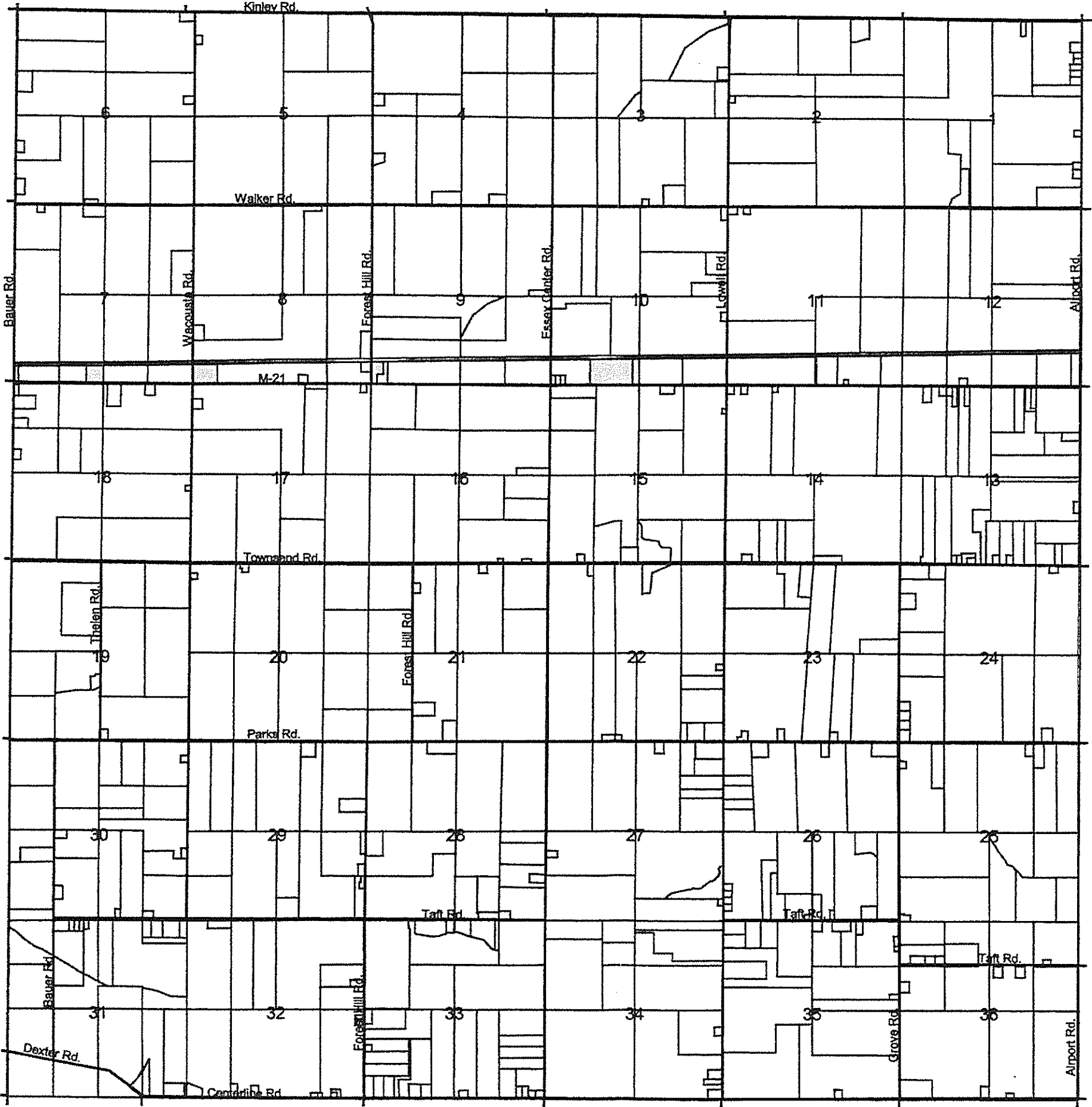
RESIDENTIAL LAND OF BENGAL TOWNSHIP



COMMERCIAL, INDUSTRIAL, & OTHER LAND OF BENGAL TOWNSHIP

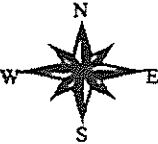


BENGAL TOWNSHIP - ZONING



SECTION NUMBERS
2000 PARCELS
ROAD WAYS
ZONING
A2
I

CREATED BY CLINTON COUNTY GIS DEPT
NO SCALE
NOT TO BE REPRODUCED WITHOUT THE EXPRESSED
WRITTEN CONSENT OF GIS DEPT



COMMUNITY FACILITIES PROFILE

Introduction

Community facilities are public services and service systems which serve the residents of Bengal Township. The township is not an urbanized area with a large number of facilities and services. It does, however, offer its residents amenities such as parks, police and fire protection services, schools and public roads. The community facilities are inventoried and described in narrative form.

An inventory of existing community facilities is important in creating a long-range community plan. Only by knowing what the community has to work with, is it possible to plan for the future. Also, community services enhance the quality of life for area residents. Good land use planning considers community facilities because they affect public health and safety, environmental health, and the economic stability of the community.

Township Land and Facilities

Township Hall

The Bengal Township Hall is located on the southwest corner of Townsend and Francis Roads. Gas heat was added recently but there is no water for the building. During the year 2000, new vinyl siding and windows were added. Only regular and special meetings for the township take place in the hall.

Cemeteries

There are four cemeteries in Bengal Township. Oakridge Cemetery is the largest (two acres) in size and is located on Taft Road in Section (19). Plans are being made to plot the east side of the cemetery which will make plots available here. Bray Cemetery is one acre in size and is located on Taft Road. Georgia Cemetery, also one acre in size, is located on Centerline Road. Frink, a private cemetery, is also one acre in size and is located on Walker Road. Other than Oakridge, there are no plots available. The township maintains the cemeteries.

Parks

There are no parks or public land located in Bengal Township. Residents looking for recreational space or programs will turn to the St. Johns School district with many activities provided at the Riley Elementary. Also, the Fowler Schools provide recreation space and activities to the community.

Library

There is not a library located within Bengal Township, but the township does give financial

support to the Bement Library in St. Johns.

The Bement Library moved to a new facility during 1998 which is located at 108 E. Railroad Street--one block north of its previous location. In addition to its book collection, the library circulation includes books-on-tape, magazines, and video rental. There are computers available for internet access and for personal computing. There is also a photocopy and fax machine available to the public. The library offers a series of pre-school story hours during the school year, a summer reading program for school-aged children during the summer and a "Third Tuesday Series" for adults primarily during the winter months. There is also a return drop box in Fowler at the Post Office.

Public Safety

Police Protection

Police protection in Bengal Township is provided by the Clinton County Sheriff Department. The Department provides various services throughout the township including traffic enforcement, emergency response, and criminal investigation.

In addition to the Sheriff's Department, the Michigan State Police provide a full range of police services across jurisdictional boundaries cooperating with local law enforcement agencies. In 1999, the Michigan State Police reported answering three calls within Bengal Township. The same report indicated that there were 28 "Sheriff Incidents" during 1999. This information was provided by the Criminal Justice Information Center at the Michigan Department of State Police.

Fire Service Protection Service

The west half of Bengal Township is served by the Dallas Township Fire Department. The organization is led by Chief Gary A. Webber and Assistant Chief Vern Feldpausch. In addition, there are three captains and 15 other volunteers for a total of 20. It is a "volunteer" system with people on-call. During the last 12 month period, the Department had 3 fire runs, 5 rescue responses in Bengal Township and a total of 61 runs total.

The east half of Bengal Township is served by the City of St. Johns Fire Department. The Fire Department is led by Chief Dick Cornwell. His is a part-time position with office hours from 8-12 a.m. daily. The other 22 fire fighters serve in a "paid on call" position. The City of St. Johns Fire Department has made few runs to Bengal Township over the past three years. There were 2 in 1998, 2 in 1999 and 8 in 2000. These numbers include all types of fire and rescue calls. Relations between the City of St. Johns Fire Department and Bengal Township have been good through the years and there are ongoing discussions between the Mayor and the Township regarding future service agreements. The City of St. Johns lists all of their fire fighting equipment as being in good condition and has an established schedule for equipment replacement.

Emergency Medical Service

In areas served by Dallas Township Fire Department, the department also provides medical first responder services. Emergency Medical Service (EMS) is provided by the Clinton Area Ambulance Service.

Educational Facilities

Public Schools

Bengal Township is served by St. Johns, Fowler and the Pewamo-Westphalia Community Schools.

St. Johns Public Schools

The following descriptive paragraph was taken from a letter from Richard Tait, Superintendent of the St. Johns Public Schools:

The St. Johns School District covers approximately 240 square miles. We have four rural elementary school buildings, as well as two city elementary schools. We also have a "Class A" high school, a new middle school building, and an alternative education program. (Because of a recent \$45 million bond issue, our two city elementary school buildings are new, our middle school is new, and we have done extensive renovations and additions to all buildings. Further, we have spent over \$5 million to upgrade and enhance our technology program.) We have approximately 3,400 children in our school district, along with 200 teachers, 130 educational support staff members, and almost 100 operational support staff employees.

Fowler Public Schools

The Fowler Public School system includes Fowler High School which is located at 700 S. Wright Road and Waldron Elementary and Middle School which is located at 11214 W. Kent Street. The high school serves grades 9-12 and Waldron serves grades pre-K through 8. The Fowler School District reported 504 students enrolled in the fall of 2000. The Fowler schools offer both preschool and special education curriculums.

Pewamo-Westphalia Schools

The district's central offices are located in Section 6 of Westphalia Township. This is also the location of the Senior and Junior High Schools along with several support buildings and sports fields. Westphalia Elementary is located within the Village. The district reported an enrollment of 700 students for the 1999-2000 academic year.

Approximately five years ago a twenty (20) acre parcel adjacent to the original property was purchased to allow room for expansion. An auditorium and band room were added to the Jr. High School, an addition was made to the Central Office and a barn was added for the use of

F.F.A. Outdoors, additional parking and a soccer practice field were added and land on the south side of the property is farmed by students.

RESA

Along with the services provided by the Pewamo-Westphalia school district, Clinton County is served by the Regional Educational Service Agency. The Regional Educational Service Agency, in the spring of 1998, had 100 special needs students enrolled on the two building campus. Services extend beyond to offer psychological, speech, occupational and physical therapy, vision and hearing testing, and gifted and talented programs to all school districts in the county.

Private Schools

St. Joseph's Catholic School, Eureka Christian, St. Peter Lutheran School, Grove Christian School, and Most Holy Trinity are nearby private schools.

County Drains

The county's drainage system is the responsibility of the Clinton County Drain Commissioner--currently Mr. Thomas O'Bryant. The Drain Commissioner is responsible for the construction and maintenance of stormwater systems in Bengal Township (and throughout the county). In addition, typical duties include inspection, enforcement and response and analysis of citizen complaints on drainage problems. The Drain Commissioner administers the state's Drain Code and the Federal Clean Water Act. County drains are shown on the road map at the end of this section.

Road System

In Bengal Township, the Clinton County Road Commission is responsible for the County road system. The Road Commission plans for and provides road maintenance, improvements and snowplowing; handles traffic safety issues such as intersection development and the installation of stop signs and traffic signals; and oversees all matters relating to the development of new county roads. The Clinton County Road Commission is located on U.S.-27 south of St. Johns.

Roads throughout the county system are classified as either "primary" roads which are designed to connect traffic county to county or "local" roads which connect primary roads to other primary roads. Subdivision streets are also considered local roads. There are 6.13 miles of primary asphalt road, 6.03 miles of local asphalt roads, and 49.59 miles of local gravel roads for a total of 61.75 miles of roads in Bengal Township. There are no primary gravel roads in Bengal Township. Francis Road, which runs north and south through the middle of the township is the primary asphalt road. It connects south to Grand River Avenue and the entrance to I-69 and I-96. Parks Road is the local asphalt road. It runs east to Wacousta Road and west to US-27BR in St. Johns.

Bengal Township is also served by M-21 which runs east and west through the Township. It is maintained by the Michigan Department of Transportation and runs east to Flint and west to Grand

Rapids.

Community Health

In Bengal Township, on-site sewage disposal and water supply fall under the jurisdiction of the Environmental Health Division of the Mid-Michigan District Health Department (MMDHD). The On-Site Sewage Disposal Program prevents public exposure to untreated water and issues permits for installing or repairing sewage disposal systems. In 1999, the Health Department issued 271 permits for on-site sewage disposal and performed 228 site evaluations in Clinton County. Over the years the Health Department has worked with changes in residential wastewater treatment which has included the introduction of lagoons (1975), above ground wastewater technology (1991), sand filter systems (1992) and aeration systems (1997). The introduction and acceptance of each of these types of systems had opened the way to develop properties that previously couldn't be developed. Residents of the Village of Westphalia are served by public sewer and water systems.

The Ground Water Quality Control Program assures that on-site wells for individual residences and others are properly constructed, located and provide an acceptable quality and quantity of water. In 1999 in Clinton County, this program served 399 individual cases. The Environmental Health Division also has programs to address campground inspection, food service sanitation, surface water quality, vacant land evaluation and the evaluation of existing water and sewage disposal systems.

Health Care Facilities

Township residents are primarily served by hospitals in St. Johns and Lansing. Specifically, health services can be attained at Sparrow Hospital and its St. Lawrence Campus facility, at the two Ingham Regional Medical Center locations in Lansing or from Clinton Memorial Hospital in St. Johns. Clinton Memorial is an acute primary care facility offering a 24-hour emergency room and full range of health services is affiliated with nearby Lansing's Sparrow Health System. The Mid-Michigan District Health Department provides health education and community health services at its main office in St. Johns as well as through clinics in Westphalia. Elderly and special needs residents receive care at numerous facilities including Hazel I. Findlay County Manor in St. Johns and the Ovid Healthcare Center. Rivendell of Michigan, located in St. Johns, is part of a national system that provides adolescent psychiatric care. Residents are also served by physicians, clinics and doctor's offices located throughout the surrounding communities.

Religious Institutions

Within the Township boundaries, there are no religious institutions. Outside of the township, residents will find nearly every denomination represented in the surrounding communities including St. Johns, Fowler, Pewamo, Westphalia, Grand Ledge and the metropolitan Lansing area.

Utilities

Residents of Bengal Township are provided with electrical service by Consumer's Energy with a small portion of the Township receiving service from Wolverine Electric. Telephone service is provided by GTE. Neither natural gas nor cable television service is available in the Township.

NATURAL FEATURES PROFILE

...Man never quite "subdues" or "conquers" Nature but perforce must make adjustments to natural conditions. Defiance or ignorance of this fact has ever resulted in disaster or distress."

J.O.Veatch

Soils and Land of Michigan

Introduction

When making plans for future land use within the community, it is imperative that the natural environment and features of the area be factored into the equation. Nature has a plan of her own which must be observed and respected in order for planning efforts to be successful. Natural resources are limited and preservation decisions are an integral part of long-range planning. Natural conditions such as prime farmland, wetlands and floodplains guide land use decisions because they are uniquely suited to agriculture, natural habitats and flooding respectively. Natural conditions can also pose engineering challenges to development such as the extension of utilities, location of a septic system or development of a new road. The costs to overcome these challenges also serve as a type of guide for development decisions.

The two most significant categories of natural features affecting land use and long-range planning are soils and water. Both of these two elements are observed in detail in the following sections. Initially, brief comments are offered on the area's topography and climate.

Topography

The land surface of Clinton County consists of nearly level to rolling glacial plains and moraines. The average elevation of the county is slightly less than 800 feet above sea level and 200 feet above the level of Lake Michigan.

Climate

The climate in Clinton County, and therefore Bengal Township, is moderate. The influence of the Great Lakes is minimized by increased cloudiness that moderates the minimum temperature during cold air outbreaks in fall and winter. Annual daily maximum temperatures average 58.5°F and summer months average maximum temperatures between 80° and 84°F. Annual daily minimum temperatures average 37.2°F and January has the lowest average minimum temperature of 14.4°F. The average seasonal precipitation is 30 inches. Snowfall averages 37.4 inches per year.

SOILS

Introduction

Soil is defined simply as a natural, three-dimensional body at the earth's surface that is capable of supporting plants. It has unique properties resulting from a combination of different factors including parent material, climate, plant and animal life, the land's topography and time. As a result, it tells us a story of natural history in the area. It also means that each soil type has characteristics which give it advantages and limitations for different uses. Good land use planning involves careful consideration of soil types for several reasons.

Because it has specific characteristics, soil is a limited natural resource. Some uses such as agriculture, forestry, natural habitats and wetlands are dependent on soil type. For them to exist in a region, areas with appropriate soils must be purposely reserved for them. Local land use planning coupled with environmental regulation at the State level are put in place recognizing the long-range public good of protecting these resources over allowing financial gain via private land development. Also, some soil characteristics make them less effective as a filtering system. As a result, some areas are much more sensitive to contamination. Higher intensity developments with a greater likelihood of contamination should be restricted in these areas.

A soil's characteristics also influence its suitability for development. It is true the most soil limitations to development can be overcome through engineering innovation; residential construction can be adjusted to limit wetness in basements or stress on foundations and special on-site sanitary systems can be designed for almost every site. But there is a financial cost to these alterations, a risk that the solutions may prove to be short-term and a danger that there may be negative environmental side-effects.

For all of these reasons, soils are an important factor in land-use planning. By considering the soil, land use planning decisions can be made to best protect the area's limited natural resources and the public's limited financial resources as well. Policy implications for the township are especially significant when considering the future land use map. On an individual basis, new residential sites should be carefully selected for suitable underlying soil as well.

Clinton County Soil Survey

The Clinton County Soil Survey was made cooperatively by the Soil Conservation Service and the Michigan Agricultural Experiment Station. It has been prepared for many different users. Farmers, foresters, and agronomists can use it to determine the potential of the soil and the management practices required for food production. Also, planners, community officials, engineers, developers, builders, and home buyers can use it to plan land use, select sites for construction, develop soil resources, or identify any special practices that may be needed.

The Soil Survey contains an abundance of information regarding soils. There is a general soils map for broad land use planning. There is also a series of detailed soil maps which are more

useful in planning the use of small areas. Another section addresses use and management of the soils where field experience and measured data are combined to predict soil behavior in a general text format. A section of nine different tables evaluates each soil type for its suitability to different purposes including building site development, sanitary facilities, excavation of construction material, and recreational development. The tables in the Soil Survey indicate whether each soil type has *slight, moderate or severe* limitations. *Slight* limitations describe soils which are generally favorable for the rated use, or that soil limitations are minor and easily overcome. *Moderate* limitations mean that the soil properties are unfavorable, but can be overcome or modified with special planning and design. *Severe* limitations are defined as those which are so unfavorable and so difficult to correct or overcome that major soil reclamation, special designs, or intensive maintenance is needed. For additional information, refer to the Clinton County Soil Survey.

Procedure

To address the issue of soils in Bengal Township, two maps have been made from one of the tables listed above to demonstrate development limitations. The maps are based on Table 8 of the Soil Survey which is entitled *Sanitary facilities and building sites*. It evaluates different aspects of building site development including soil suitability for the construction of dwellings with basements and soil suitability for septic tank absorption fields. Both of the maps were created by Mr. Steve Law in the St. Johns office of the Natural Resources Conservation Service (N.R.C.S.). The maps themselves are included at the end of this section.

Observations

Building Site Development

A majority of the soils in Bengal Township have severe limitations for the construction of dwellings with basements. In almost half of the sections in the township, the map shows only soil with severe limitations. This is especially true in the northwest quarter of the township. Exceptions are concentrated along the western mile and the southern two miles. The land which is mapped with *slight limitations* is very similar to the land mapped as being *neither prime nor unique soils*. This combination indicates that based on soil suitability, the areas in the southern two miles of the township and the eastern mile of the township may be both better suited to building and less suited to agriculture. The same combination occurs to a more limited extent in a diagonal band through Sections 3, 9, and 20.

Sanitary Facilities

The map of Bengal Township showing soils limitations for septic tank absorption fields looks very similar to the one described above for dwellings with basements. Most of the soil throughout the northwest quarter of the township has severe limitations for septic tank absorption fields. The areas with concentrations of soils with *moderate* and *slight limitations* for septic tank suitability fall along the eastern and southern miles of the township. The diagonal band through Sections 3,

9 and 20 appears again as well. These are the same general locations as the soils which are neither prime nor unique.

Conclusions

Soils which are especially good for farming--areas of prime and unique farmland--appear to be especially limited for the construction of dwellings and the associated septic tank absorption fields. The reverse is also true. Areas which are best--or at least moderately--suited to residential dwellings and the associated septic tank absorption field are also those which are not prime or unique farmland. In this case, soils types suggest a specific direction for land use planning.

In every instance, individual building sites should be very carefully selected for both the structure itself and the septic system. Design modifications should be made when necessary to overcome physical site limitations. Also, the township should encourage cooperation and coordination between the County Building Official and the Mid-Michigan District Health Department to assure compliance with all requirements of on-site septic permits.

Bengal Township contains a wide range of soil types which are scattered in small areas throughout the township. Due to mapping limitations, it remains extremely important that on-site soil analysis be done in all instances to obtain accurate information. Soil characteristics effect the site regardless of its use. It effects the site's interaction with water including drainage (or lack of), its ability to act as a natural filtering system and a site's productivity in agriculture. It also effects the site's suitability for development.

WATER

Introduction

Water is one of the most significant natural features to consider when planning for the physical development of a community. Water works its way through a repetitious cycle of renewal--falling as rain or snow, being absorbed into the earth's physical body and then evaporating back into the air. It appears in different areas of the community with a variety of environmental and regulatory significance in each instance. Watershed areas are identified for areas sharing a common drain. Aquifers serve as an underground source of fresh water for a specific region. Wetlands are areas where water and land meet which offer a combination of environmental and aesthetic benefits to an area. Flood plains are areas adjacent to open water bodies which are prone to flooding. For each of these areas, there are statutes or guidelines and departments or organizations in place to protect water as a natural resource in its natural condition. This part of the chapter explores these four separate instances where water can be incorporated into land use planning in terms of both its role in the environment and its local significance in relation to regional, state and federal regulatory issues.

Watersheds

A watershed is a physical area of land which is drained by a common source--a river or river system. Because water naturally flows downhill, watershed boundaries are drawn by connecting the points of highest elevation around a body of water. All of the land found within the "raised" boundary, then, drains to the body of water at the low point of the watershed.

The south two to three miles of Bengal Township is served by the Stoney Creek Basin (with the Stoney Creek flowing through the southern two miles). North of the Stoney Creek Basin is the Maple River Watershed which is reached through the Hayworth and Extension Drain.

Because watersheds are formed by physical boundaries, political boundaries have no significance. Watersheds contain all or parts of many different political jurisdictions. Organizations such as the USDA, the Natural Resources Conservation Service and Agricultural Extension Agencies may sponsor the formation of watershed associations to address issues of water quality because contamination in one area will quickly affect the larger area. One such organization is the Stoney Creek Conservation Area. This grass roots, non-profit organization was founded initially for political reasons related to drainage but now works on a wide range of issues related to the overall environmental health of the Stoney Creek.

Groundwater

The earth has an overall water supply which remains fairly constant through the centuries and which is recycled repeatedly through a natural filtering system. Less than one percent is usable, fresh water--an extremely valuable natural resource. Of all fresh water, 97% is located underground and is known as groundwater.

Water repeatedly travels through a cycle of air, land and water. Water falls to the earth in the form of rain or snow. Some of it goes directly into surface water bodies, some is absorbed by plants and some sinks down into the soil. Water that filters through the soil eventually gets to an aquifer. The top of the aquifer is called the water table and is at the same level as nearby lakes and streams. The aquifer itself, lying just below the water table, is a layer of porous sand or rock in which all of the empty spaces are filled by water. Aquifers hold water like reservoirs and allow it to move from place to place. Water moves slowly in a given direction, quite unlike the underground river it was once imagined to be. To complete the cycle, groundwater returns to the surface either naturally via lakes or springs or it may be pumped to the surface through a man-made well.

Aquifers are our main source of clean, freshwater including drinking water. The water is clean because the sand or rock making up the aquifer layer provides an additional filtering system. As a result, both individual and municipal wells take water from the aquifer for household and regional water supplies. In the Tri-County Region, groundwater is the source for over 90% of water used.

Care must be taken above the ground in order to assure a plentiful, clean water supply. Contamination from any one source can enter the aquifer and affect all of the water within it. Also, the rate at which water is removed from the aquifer by wells needs to be balanced with the rate at which the aquifer is replenished so that the water level (and therefore the water supply) remains constant. The Groundwater Management Board--one of the many programs housed under the umbrella of the Tri-County Regional Planning Commission--promotes methods of good stewardship through education programs throughout the area. There are thirteen area municipalities which are dues paying members and the Board is currently accepting new members.

County and local agencies play an essential role in establishing and implementing a comprehensive groundwater protection program for the community. While there are both state and federal regulations in place which address groundwater protection strategies, the programs have gaps and overall lack funding and adequate staff. The burden of effective groundwater protection is shared by the local health department and the local government which has broad legal authority to regulate groundwater protection. The specifics of each local program will depend on factors such as the role of the health department and the limits of local staff, financial resources and political support.

An effective local strategy includes both a partnership with state and federal regulatory agencies and local land use control measures. As part of the state's program to address groundwater contamination through non-point source pollution, a series of "Best Management Practices" were introduced. Best Management Practices (BMPs) are defined as structural, vegetative or managerial practices used to treat, prevent or reduce water pollution. These may include secondary containment requirements, blocking of interior floor drains, density restrictions for unsewered development, minimizing impervious surfaces and requiring compliance with applicable state regulations. At the local level, BMPs can be implemented through the zoning ordinance (usually through site plan review standards) or through a separate Hazardous Substance Ordinance.

The threat of groundwater contamination is a real one. Bengal Township residents depend on groundwater for drinking water. In addition, site contamination impacts property values, poses a threat to public health, can be costly to the community and impacts the community's image. At the County level, the Mid-Michigan Health Department's Environmental Health Division has a Ground Water Quality Control Program which is administered in compliance with Part 127 of Act 368 of 1978.. The program includes the well-permit program for new wells which results in a data base which may be helpful to the township. The information gathered by the program includes well location, water quantity of the well and water quality information which is processed by the State of Michigan's Health Department. A general inquiry to the Mid-Michigan Health Department resulted in the following information from Sarah Conlin who is the sanitarian serving Bengal Township. There are no known water quality issues in Bengal based on well permit information. In general, the clay soils in the area are a good filter for the nitrates and nitrites which are the most likely contaminant in agricultural areas.

At the state level, the Storage Tank Division of the DEQ is responsible for keeping track of Leaking Underground Storage Tanks (LUST sites). The LUST site list is done by county--there are 74 open sites and another 95 closed sites in Clinton County. A list of sites can be viewed on the webpage of the Storage Tank Division at www.deq.state.mi.us/std. The Environmental Response Division of the Department of Environmental Quality (DEQ) regulates sites defined as "contaminated" by State Statute (Part 201 of P.A. 451 of 1994). This list is also kept by county. There are 23 sites listed for Clinton County with only one of them listed as "closed." Many are listed as *No Action Taken* and the rest are listed as *Active*. A list of these sites can be viewed on the webpage of the Environmental Response Division at www.deq.state.mi.us/erd. Remembering that groundwater contamination does not stop at municipal lines, it is clear that great care must be taken through sound planning practices to assure that township residents continue to enjoy a plentiful, quality water supply.

Wetlands

Wetlands are those areas where land and water meet. They are areas commonly called swamps, bogs or marshes but can also be low-lying forest or meadowland where water is not visible above the land surface. Wetland areas are identified by the presence of water and by plant species and soil conditions. Typical wetland vegetation includes trees such as cottonwood, red and silver maples and northern white cedar; shrubs such as alder and cranberry and plants like cattails and bulrushes. Wetland soils tend to be dark or dull and moist to the touch and often have a high organic content. There are approximately 5 million acres of wetlands in the State of Michigan--75% of which are forest area.

Wetlands are an important part of our ecosystem. They provide rich habitat areas for fish and wildlife, sedimentation control, water purification and flood control. They also provide scenic natural environments for recreation and tourism enhancement.

Wetland maps are available through both the U.S. Dept. of Interior (Fish and Wildlife Service) and the MDNR. The Dept. of Interior offers the National Wetland Inventory maps which are created by interpretation of aerial photographs for the purpose of identifying wetlands. The MDNR offers the Michigan Resource Information System (MIRIS) which is a digitized computer mapping of land cover types. It has several categories which pertain to wetlands but is not specifically intended to locate wetlands. Either map alone cannot be used to delineate wetland areas definitively, but can be a good general guide. Supplementary data from the Clinton County Soil Survey and site specific aerial photos can be used as additional indicators. To obtain a specific wetland delineation, an on-site investigation must be performed by a qualified professional.

As noted in the Land Use Profile, there are very few wetland areas mapped in Bengal Township. The MIRIS Map mentioned above shows a large wetland area in the west half of Section 33 adjacent to the Stoney Creek. There are also a smaller wetland areas in Section 13 and 17.

Wetlands are regulated by state statute (Part 303 of P.A. 451 of 1994) and administered by the Michigan Dept. of Environmental Quality. Activities which disturb a wetland such as dredging, filling, draining or development on a wetland are extremely limited and usually require a permit. Development is restricted within a wetland as a protective measure for environmental concerns and also because wetlands present several serious constraints to construction. Wetland soils are unstable which is costly to overcome from a construction standpoint. Even with specialized designs, cracked walls and foundations are common due to flooding and settling both in and around wetlands.

Although regulation of wetlands is done at the State level, Clinton County and Bengal Township must coordinate with the MDEQ to make administration of the Act effective. By being aware of possible wetland areas, the development official can steer developers to the MDEQ when development sites are likely to be regulated wetland areas. Specific administrative procedures can be written into the County Zoning Ordinance to give the local official more authority in this area. Obvious wetland areas can be protected locally by incorporating them into the Zoning District Map and the Future Land Use Map as low intensity development areas, open space or park areas. The Township has the legal authority to adopt a local wetlands ordinance should a need be identified. By carefully supporting existing state legislation, Bengal Township in partnership with Clinton County can preserve a valuable natural resource within its community.

Flood Plains

Flood plains refer to those areas which are adjacent to lakes, rivers, streams and ponds that are prone to overflow and flood their banks. This also includes county drains. Land within the 100-year floodplain statistically has at least a 1 percent chance of flooding in any given year and therefore a 100 percent chance of flooding within a 100 year period. Flood plains differ greatly in size depending upon factors such as the permeability of the soil and the volume of water within the water body.

A floodplain contains three basic components. First, there is the *channel* which is the area of normal stream flow. Second, there is the *floodway* which is the 100-year flood plain. The third piece of a floodplain is the *flood fringe*--the land between the *floodway* and the outer limits of the areas known to be subject to possible flooding.

A floodplain has the natural significance of being an area likely to flood--thereby endangering life and property. In 1968 the U.S. Congress passed the National Flood Insurance Act (NFIA) creating the National Flood Insurance Program (NFIP) and gave floodplains a regulatory significance as well. The NFIP shifted the financial burden of funding flood disaster from the government (and therefore the taxpayers as a whole) to those most likely to need the dollars through the establishment of self-funding insurance program. Flood insurance which had not been available before was made available and was made a requirement of receiving a mortgage from any federally backed lender for structures located in the 100-year floodplain. The program is administered at the local and state levels and imposes strict limitations on any type of development activity within the 100-year floodplain. Communities "participate" by adopting local

floodplain management ordinances and must be "participating" in order for residents to be eligible for the insurance. Bengal Township is not a participating member of this program but could opt to join at any time if a need arises.

At this time, the State N.R.C.S. office has completed an hydrology and hydraulics study for the Stoney Creek. Once this information has been adopted by resolution at the township and county levels of government, it will be acceted as a true floodplain designation for the Stoney Creek. Results of this study also show that the Stoney Creek is an extremely unstable drainage system. This has occurred partly because of efficient soil drainage systems which release water into the Stoney Creek. Tile drainage systems, for instance, drain water at a high speed and do not provide for a natural filtering process to remove contaminants from the water. Both the rate and quality of the water entering the Stoney Creek contribute to other conditions such as erosion, sedimentation deposits and chemical and nutrient contamination. Building activities close to the Stoney Creek also alter the natural drainage pattern which in the long run also effects the eco-system. In short, the Stoney Creek is far removed from its natural, balanced condition.

To address the condition of the Stoney Creek, a \$1.9 million grant has been given to the Clinton County Conservation District Office through PL566, the *Watershed Protection and Flood Prevention Act*. The purpose of the grant is to identify and mitigate areas of erosion either directly or through the creation of wetlands or retension areas to keep water from entering the Stoney Creek directly. The money will be disbursed to specific projects along the Stoney Creek over approximately the next five (5) years. Interested persons should contact Christine Corgan at the Clinton County Conservation District Office.

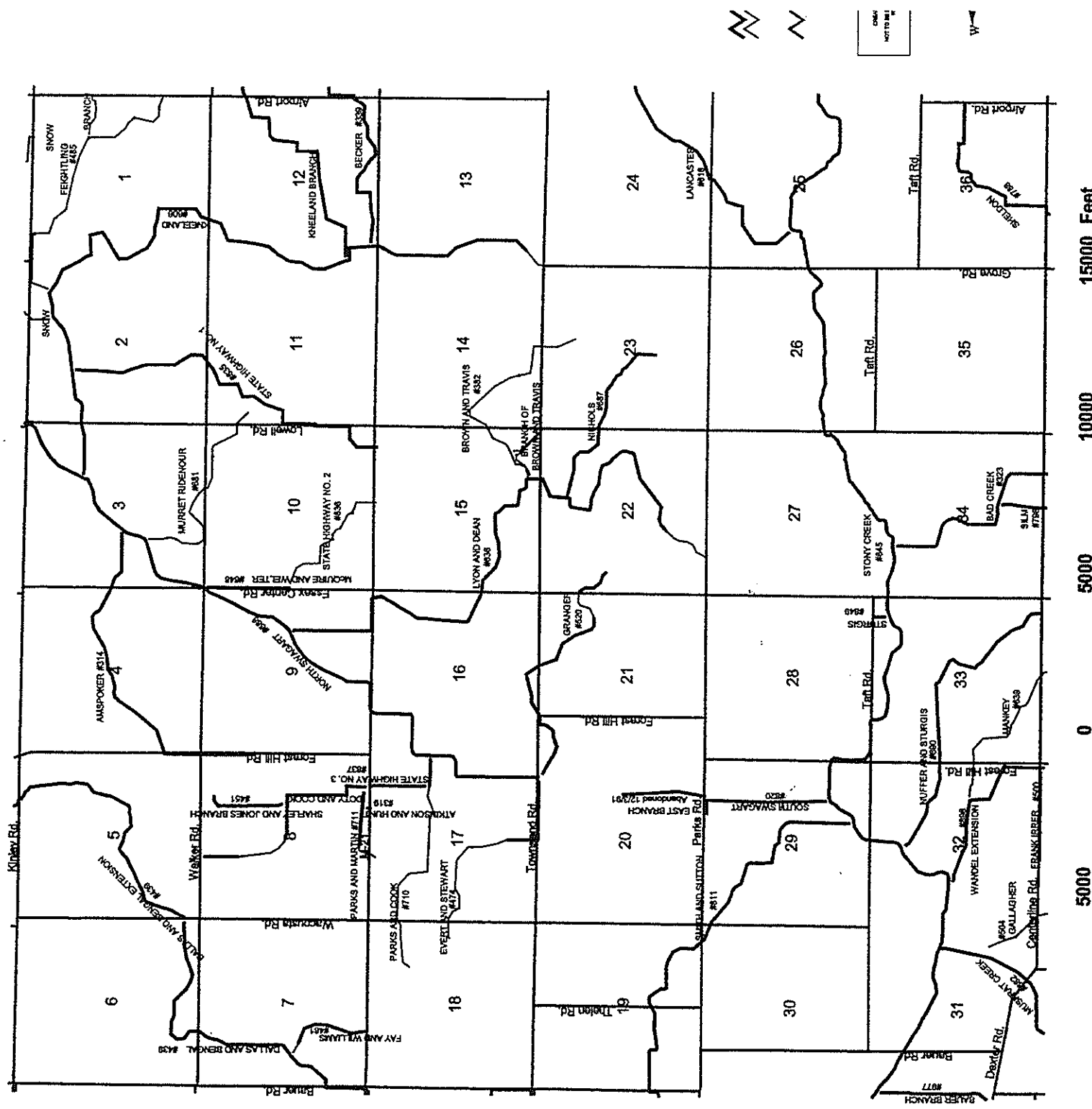
Although federal floodplain regulations are not in place in Bengal Township, there are State regulations which do apply. A permit from the State Department of Environmental Quality (MDEQ) is required for all activities within the floodplain that reduce storage capacity. An on-site determination of the floodplain boundary is available by request to the MDEQ. The building code has floodplain requirements in it as well. Floodplain regulations can also be incorporated into the County's Zoning Ordinance. It is the local code administrator who assures that the permits are secured when required.

Conclusion

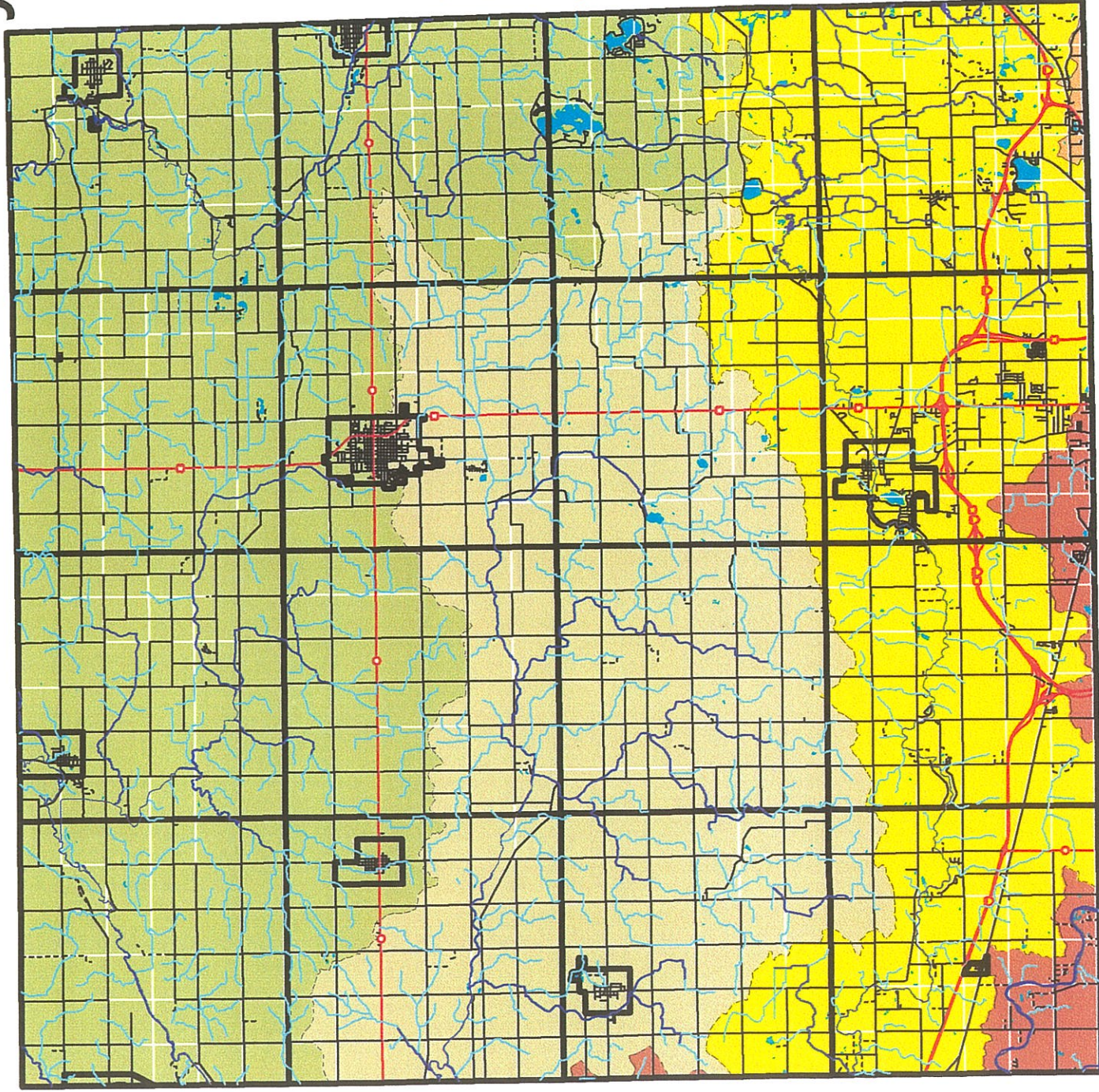
Watershed boundaries tie together a collection of municipalities sharing the same drain. Special watershed organizations promote best management practices in order to prevent contamination to the river or river system. Groundwater--and specifically the regional aquifer--is the major source of the area's water supply. Best Management Practices for all types of land use can be promoted through both education and regulation to help protect this resource. Wetlands exist throughout the township and offer many natural benefits including water purification, flood management and unique habitats. Through coordination with the State Department of Environmental Quality and Clinton County's Department of Building & Zoning, Bengal Township can continue to protect this natural resource. Floodplains are areas prone to flooding as defined by state law. They exist adjacent to waterways of all sizes. Even if the township does not participate in the federal

program, they need to be carefully protected both to prevent flood damage and to comply with state regulation. Bengal Township can best protect its water resources through education initiatives for residents and by working with the building official to assure careful administration of the local building code. Water is a significant natural feature and resource to be considered and protected through the comprehensive planning process.

BENGAL TOWNS(P - DRAINS



Clinton County



Watershed Boundaries

- Grand River
- Looking Glass River
- Stony Creek
- Maple River
- Red Cedar River

Drains and Intermit. Streams

Rivers and Streams

Political Boundary

Two-Track/Seasonal

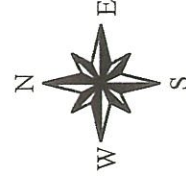
Highways

Streets

County Roads

Lake

Section Lines Appear in White



2 0 2 4 6 Miles



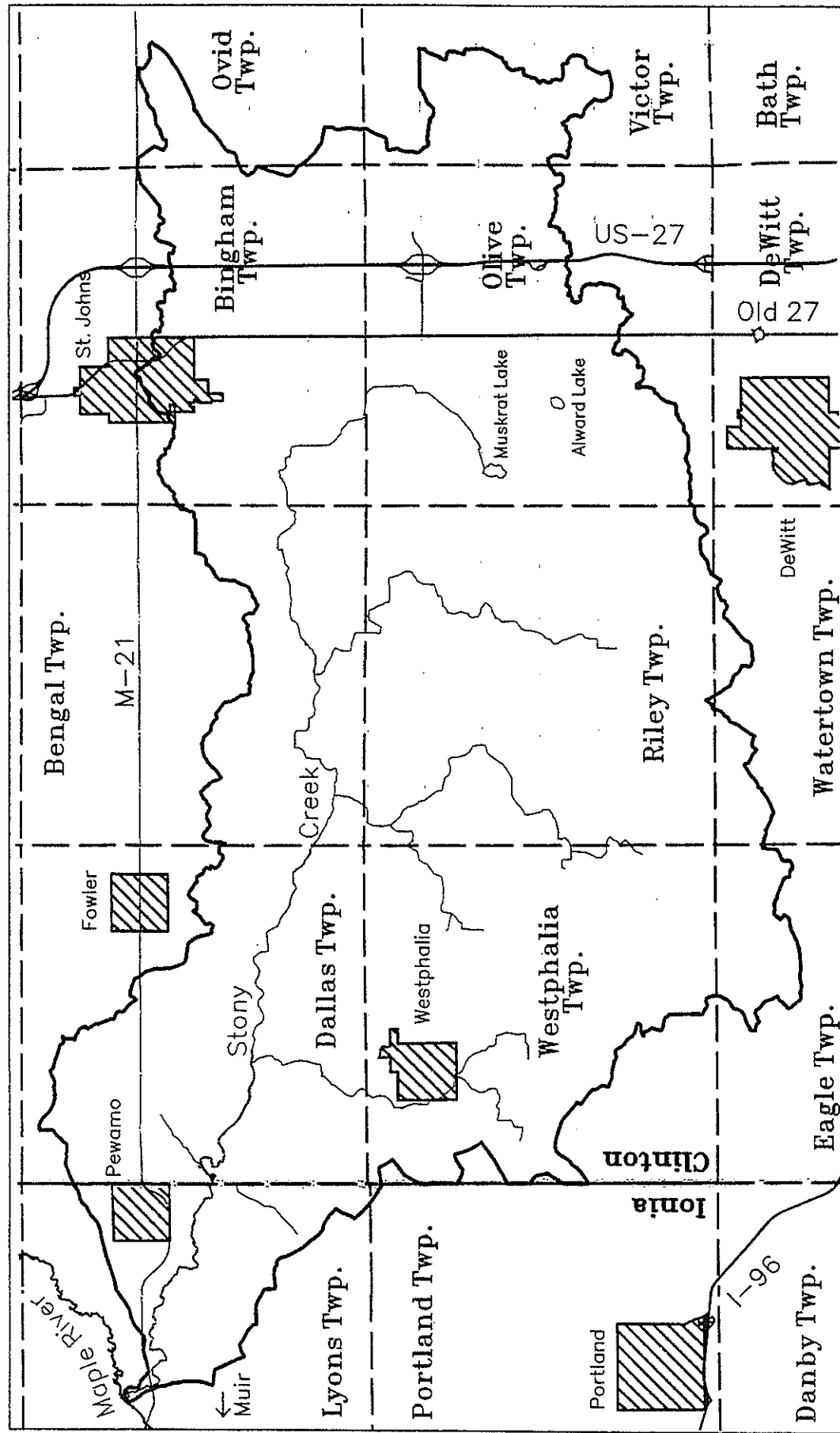


Figure 1 – Study Area Map

General Land Use Stony Creek Watershed

Urban

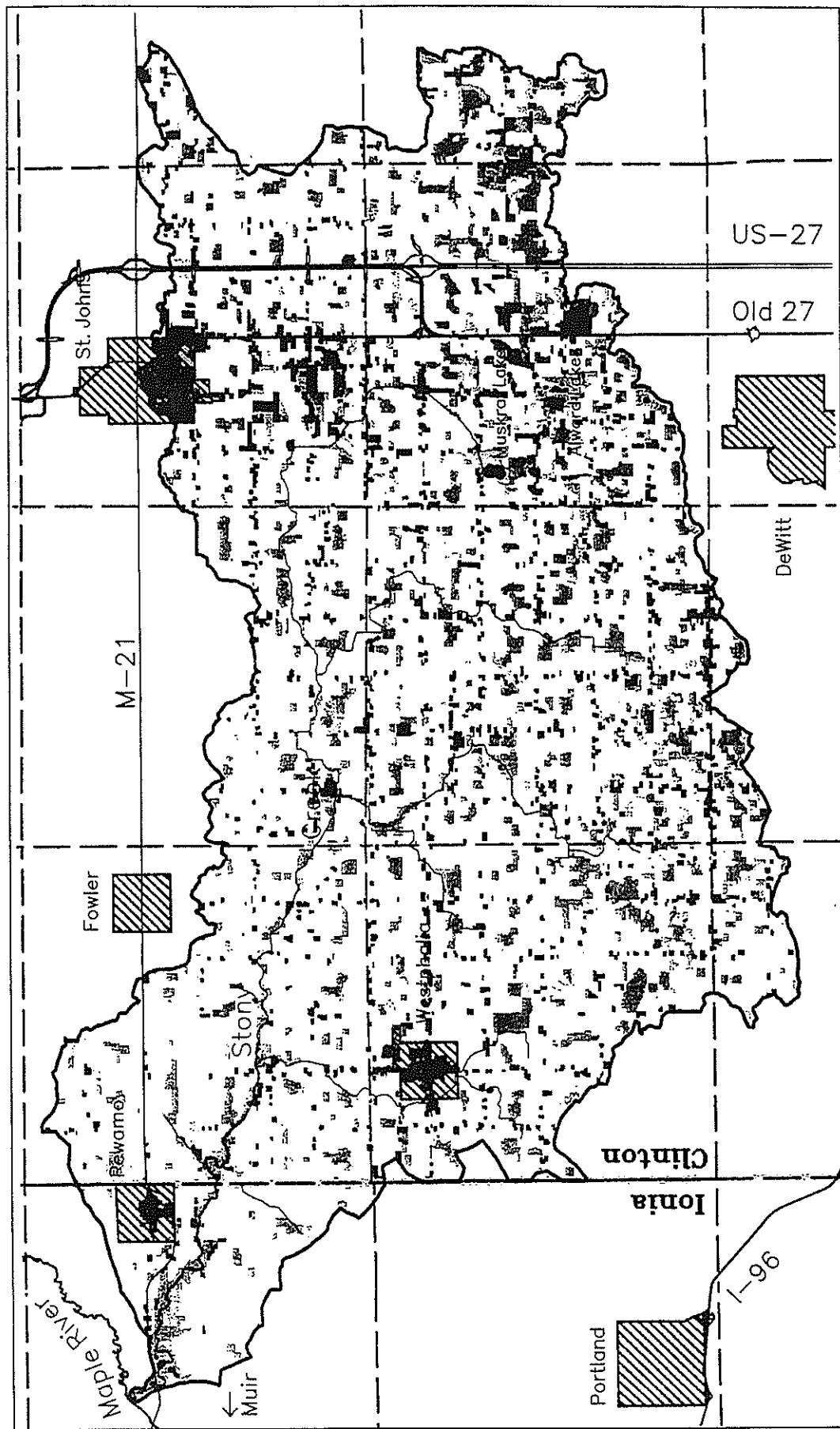
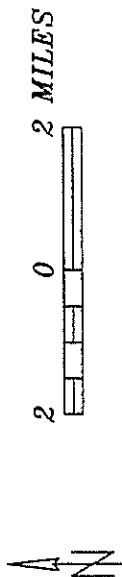
Agricultural

Non-Forested

Forested

Water

Wetlands

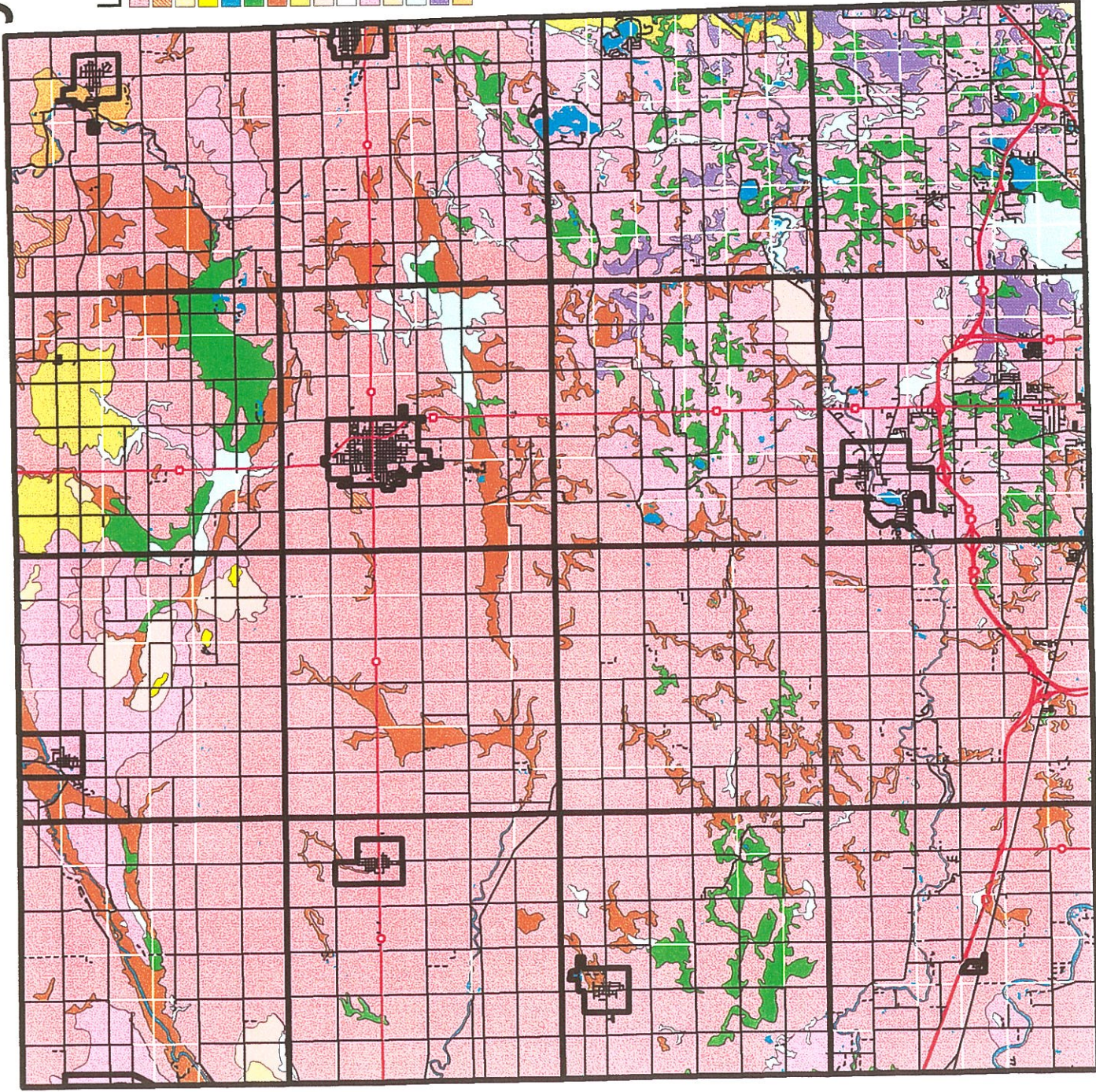


DATA SOURCE: MDNR MIRIS Base and Land Use Data (1999)
Map produced at the St. Johns field office.

Figure 4 – 1999 Land Use

FEBRUARY 2000

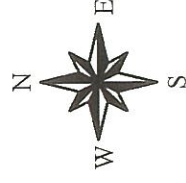
Clinton County



Land Cover

- BEECH-SUGAR MAPLE FOREST
- BLACK ASH SWAMP
- BLACK OAK BARREN
- GRASSLAND
- LAKE/RIVER
- MIXED CONIFER SWAMP
- MIXED HARDWOOD SWAMP
- MIXED OAK FOREST
- MIXED OAK SAVANNA
- MUSKEG/BOG
- OAK-HICKORY FOREST
- RED PINE-WHITE PINE FOREST
- SHRUB SWAMP/EMERGENT MARSH
- WET PRAIRIE
- WHITE PINE-MIXED HARDWOOD FOREST

- Political Boundary
- Two-Track/Seasonal
- Highways
- Streets
- County Roads
- Lake
- Section Lines Appear in White



GOALS, POLICIES AND OBJECTIVES

The following text describes the Mission Statement and presents the Goals, Policies and Objectives for the Comprehensive Development Plan for Bengal Township. Bengal Township will periodically review the Mission Statement and the Goals, Policies and Objectives to evaluate, prioritize, and establish appropriate time frames for land use planning activities.

Mission Statement: Comprehensive Land Use Plan

To plan and implement an environmentally and fiscally responsible pattern of future land use for Bengal Township which has the following five objectives;

- 1. Provide for the preservation of agricultural activities and associated open space characteristics within the township.**
- 2. Maintain and enhance the rural residential quality of life currently existing within the township.**
- 3. Emphasize cooperation and coordination between local governmental jurisdictions (Clinton County and adjacent townships) on land use planning, environmental, and basic service issues.**
- 4. Encourage Clinton County to emphasize cluster residential development and other land preservation options in various zoning amendments.**
- 5. Provide for the continuation and reasonable expansion of the existing non-residential land uses within Bengal Township.**

To assist in understanding the use of various terms within the Mission Statement, the following definitions are provided;

GOAL - A description of the 'vision' for the future that Bengal Township strives to attain.

POLICY - An official policy commitment by the governing body which outlines general statements about how a goal is to be achieved.

OBJECTIVE - A description of specific actions and reasonable timelines which are designed to implement the policy statements.

The overall Mission Statement and the Goals, Policies, and Objectives in the specific functional areas of Rural Environment, Agricultural Land Preservation, Residential Development, Natural Resource Management, Non-Residential Development, Governmental Coordination, and Community Facilities and Infrastructure will be the policy basis for the Future Land Use section of the Comprehensive Development Plan.

GOAL: AGRICULTURAL LAND PRESERVATION

The Bengal Township Comprehensive Development Plan will place primary emphasis on the preservation of agricultural land through appropriate land use strategies and regulatory controls.

Policy 1: Bengal Township will take a leadership role in educating township residents on the impact of residential development on agricultural land and the benefits of creating a comprehensive preservation strategy.

Objective 1: Provide information regularly in a proposed Township newsletter about the benefits of creating a comprehensive preservation strategy and current planning commission activity.

Objective 2: Promote and distribute the State of Michigan "Right to Farm Act" to township residents and property owners.

Objective 3: Recommend that legislation be adopted that would require "right to farm" disclosure statements be included in real estate transactions closing documents.

Policy 2: Bengal Township will support the research, discussion, and adoption of appropriate policies and regulations which will reduce the rate of loss of existing prime and unique farmland to development.

Objective 1: Identify within the Comprehensive Development Plan for Bengal Township the location of prime and unique farmland and land currently enrolled in the State of Michigan's P.A. 116 farmland preservation program.

Objective 2: Define and identify on the Future Land Use Map of the Comprehensive Development Plan an agricultural land use category in order to clearly identify areas intended for long term agricultural preservation.

Objective 3: Research, discuss and adopt new land use regulations which discourage residential development in the primary agricultural zoning district (Quarter Quarter Zoning District, Exclusive Agricultural District, Etc.).

Objective 4: Participate in county and regional activities which research and recommend feasible tools for reducing the loss of agricultural production acreage (Transfer of Development Rights, Purchase of Development Rights, Sliding Scale Zoning District, Quarter Quarter Zoning District, Agricultural Buffer Zones, etc.).

Objective 5: Explore the feasibility of establishing the agricultural preservation areas within Bengal Township as "sending areas" within a Transfer of Development Rights Program.

GOAL: RURAL ENVIRONMENT

Support the research, discussion, and adoption of appropriate policies and regulations which encourage the preservation of natural resources and open space which are essential parts of a quality rural environment.

Policy 1: Initiate and support efforts by various public and private organizations (Michigan Farm Bureau, Tri-County Regional Planning Commission, etc.) to reduce the consumption of land area for residential development.

Objective 1: Research, discuss, and adopt new land use regulations which discourage residential development within significant natural features of Bengal Township (wetlands, unique soils, etc.).

Objective 2 : Adopt new land use regulations which provide incentives for clustering or grouping new residential development and maximizing open space.

Objective 3: In conjunction with the Tri-County Regional Planning Commission and other Townships within the county, recommend a series of amendments to the zoning ordinance such as innovative cluster regulations, conservation planning, open space linkages, smaller parcel size and higher open space requirements

GOAL: NATURAL RESOURCE MANAGEMENT

The Bengal Township Comprehensive Development Plan will conserve environmental assets and natural resources by minimizing negative impacts on environmental resources such as groundwater, wetlands, wildlife habitats, woodlots and the drainage system.

Policy 1: Bengal Township will actively promote educational and regulatory efforts to protect regional groundwater resources and surface water quality.

Objective 1: Investigate becoming a participating member of the Groundwater Management Board.

Objective 2: Research the possibility of a training session on groundwater and groundwater protection measures by the Groundwater Management Board or other qualified source.

Policy 2: Research and implement an appropriate set of activities, procedures and regulations to address the issue of wellhead protection within Bengal Township.

Objective 1: Consider and adopt *Best Management Practices* as developed by the State of Michigan where appropriate in the site plan review process to prevent point source pollution.

Objective 2: Investigate and adopt regulatory measures to assure that wells which are abandoned or replaced are properly sealed.

Policy 3: Encourage low impact land use patterns in sensitive areas.

Objective 1: Encourage and support efforts by private land owners to adopt wildlife habitat preservation strategies through organizations such as the Michigan Wildlife Habitat Foundation.

Objective 2: Through education and research, develop a series of potential amendments to the Zoning Ordinance which encourage innovative development designs to protect unique or sensitive environmental features. They may include cluster regulations, smaller parcel size along with open space requirements, conservation planning and open space linkages.

GOAL: NON-RESIDENTIAL DEVELOPMENT

Non-residential development within Bengal Township will be encouraged to develop primarily as an agri-business support to the agricultural preservation strategy of the Comprehensive Development Plan.

Policy 1: Agri-business development will be regulated through the Special Land Use provisions of the Clinton County Township Zoning Ordinance.

Objective 1: Review the Special Land Use provisions and the Agri-business definition within the zoning ordinance and revise as needed.

Policy 2: Commercial development areas will not be recommended within the township and will be encouraged to development adjacent to existing villages and incorporated areas.

GOAL: COMMUNITY FACILITIES AND INFRASTRUCTURE

Provide minimal yet efficient and cost effective public services to Bengal Township residents which support the community's rural quality of life and low density residential character.

Policy 1: Coordinate with the Clinton County Road Commission to encourage regulation and improvements as appropriate to maximize traffic safety.

Objective 1: In cooperation with the Clinton County Road Commission, develop tools which encourage cluster residential development proposals to minimize driveway access onto the county road system.

Objective 2: In cooperation with the Clinton County Road Commission, develop tools which assure that private roads meet or exceed construction and design standards for the equivalent public road.

Policy 2: Continue to provide police protection through the Clinton County Sheriff's Department and fire protection services through contract arrangements.

Policy 3: The provision of a public sewer or water supply system will not be considered by Bengal Township for reasons other than a threat to the public health.

GOAL: GOVERNMENTAL COORDINATION

Bengal Township should coordinate with the Clinton County Planning Commission and the Board of Commissioners in the housing market research proposed by the County which is part of the development of a strategy for proposed manufactured home park locations within the county.

FUTURE LAND USE PATTERNS IN BENGAL TOWNSHIP

This section contains a recommended pattern of future land use for Bengal Township which recognizes existing development trends, addresses the Mission Statement of the Comprehensive Development Plan, and applies contemporary land use planning principles.

Regional Perspective

The future land use pattern for Bengal Township is also based on the following assumptions...that there will continue to be a strong and viable agricultural economy within the county and the township, that Bengal Township will discourage substantial conversions of agricultural land to residential development, and that Bengal Township will not develop infrastructure (water or sewer systems) in order to maintain the rural quality of life currently found in the township.

The future land use pattern for Bengal Township also recognizes that development should be encouraged and directed toward those governmental jurisdictions which can provide the appropriate infrastructure systems to support development. Specifically, the Comprehensive Development Plans in DeWitt Charter Township, Bingham Township, and the City of St. Johns have anticipated significant development pressure and have created infrastructure systems to accommodate that growth. Bengal Township expects to continue to act as a rural agricultural community with a long range emphasis on the maintenance of the agricultural economy.

Future Land Use Categories

The following definitions apply to future land use recommendations for specific geographic areas within the Township Comprehensive Future Land Use Plan Map. Those categories of future land use are...

Agricultural Land Use Emphasis:

Those unique agricultural production land areas identified within the Comprehensive Land Use Plan which represent a critical component of the total agricultural economy within the region both now and in the foreseeable future. It is anticipated that residential development would be discouraged and directed toward other geographic areas within the township through the research and application of farmland preservation tools. Agri-business operations would be allowed through the application of the Special Use Permit process.

Rural Land Use Emphasis:

The geographic areas identified within the Comprehensive Land Use Plan which are encouraged to accommodate very low density residential development with an emphasis on open space preservation that supports a rural quality of life environment. Agricultural and

agri-business would be encouraged within these geographic areas.

Mixed Land Use Development Emphasis:

As recommended in the Comprehensive Land Use Plan, these areas which contain multi-use land development patterns of well planned commercial, office, and other non-residential land uses will be encouraged to develop adjacent to existing infrastructure systems in other parts of the County. Existing non-residential land uses, including agri-business operations, are encouraged to remain and expand within Bengal Township.

Community Facilities and Recreational Land Use Emphasis:

This category of land use identifies existing and future locations for Community Facilities (Township Offices, Governmental Facilities, Etc.) and other quasi public land uses.

Note: The Future Land Use Map for Bengal Township can be reviewed at the end of this section.

POPULATION PROJECTIONS

Several population projections have been prepared for Clinton County and Bengal Township through the year 2020. The Office of the State Demographer prepared a projection in January, 1996, for every county in the State of Michigan. Tri-County Regional Planning Commission prepared a regional population forecast as part of a Travel Demand Model for the region which has recently been revised. Both of these sources were used to produce the chart below. Estimate #1 presents the actual population and projections for Clinton County. Estimate #2 is a calculation for Bengal Township based on the Clinton County projection as prepared by the Tri-County Regional Planning Commission. This population projection for Bengal Township anticipates slow growth for Bengal Township over the next twenty years.

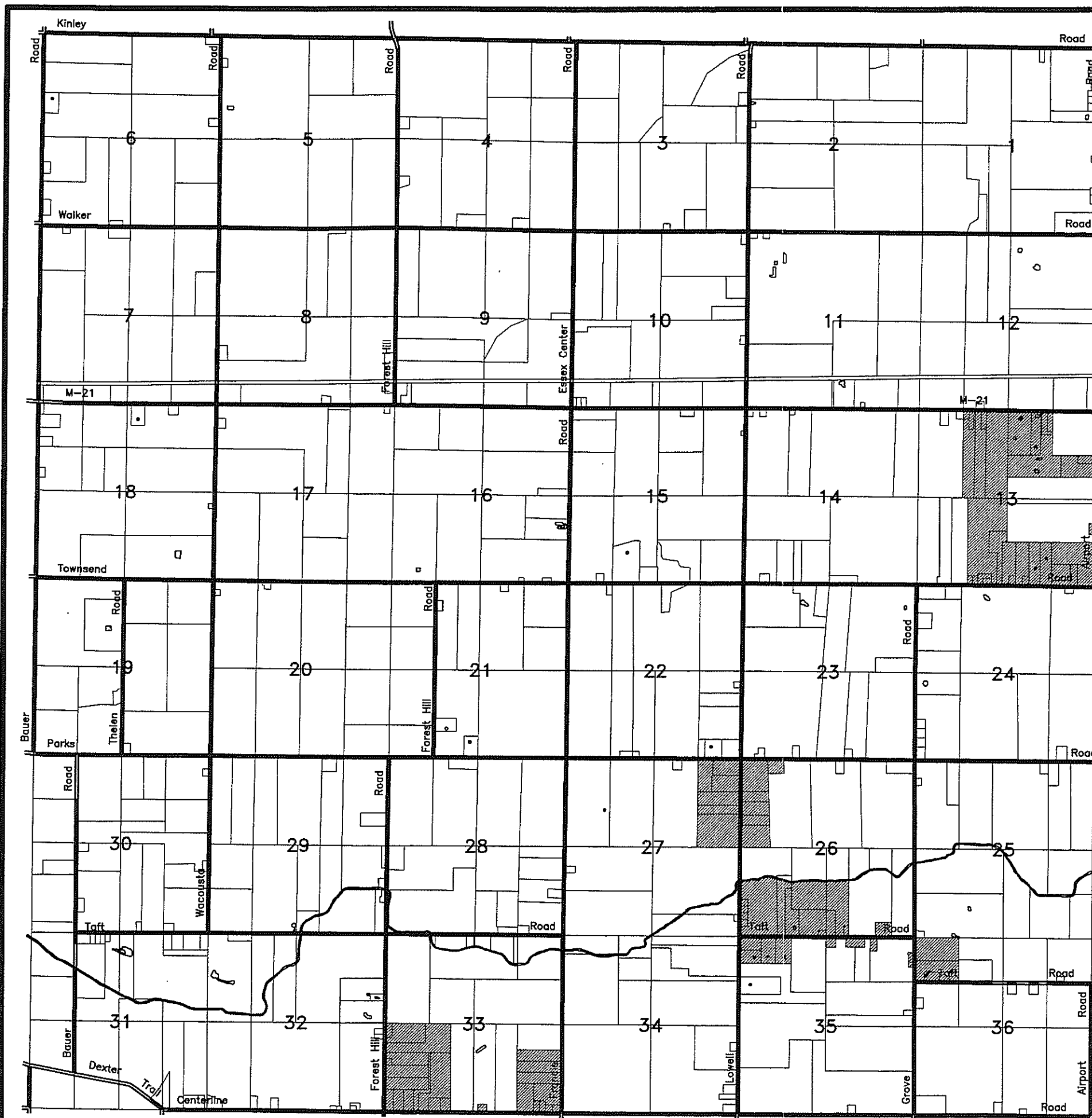
BENGAL TOWNSHIP POPULATION PROJECTIONS THROUGH 2020

Clinton County									
	Census 1970	Census 1980	Census 1990	Projected 2000	Census 2000	Projected 2005	Projected 2010	Projected 2015	Projected 2020
Est. #1	48492	55893	57883	63400	64753	73892	78858	83292	87152
Bengal Township									
	Census 1970	Census 1980	Census 1990	Projected 2000	Census 2000	Projected 2005	Projected 2010	Projected 2015	Projected 2020
Est. #2	1,005	1,067	989	899	1,174	1,302	1,370	1,466	1,559

New home construction can also be used as an indicator of population increase. The housing profile presented information of the number of new houses built in Bengal Township since 1990. It also includes information on the vacancy rate of housing units in the township and the average number of persons per household for the township. Using this information, it is possible to consider the impact of market forces on growth estimates and create a third population estimate.

Since 1990, there has been an average of 9 new homes built in Bengal Township each year. Utilizing the current household size of 3.11 and adjusting downward to 3.0 persons per household to reflect the decreasing household size, and utilizing the current residential vacancy rate of 3.6%, it can be estimated that by the year 2010 there will be approximately 261 additional persons residing in Bengal Township. This will result in a total population of approximately 1435 people by the year 2010. Using this same projection method over the next twenty years, it can be estimated that approximately 1662 people will be residing in Bengal Township in the year 2020.

All of the estimating methods utilized can provide a range of population numbers to assist in the planning process.



BENGAL TOWNSHIP CLINTON COUNTY, MICHIGAN FUTURE LAND USE MAP



LEGEND

The following definitions apply to future land use recommendations for specific geographic areas within the Township Comprehensive Land Use Plan. Those categories of future land use are...

Agricultural Land Use Emphasis, Rural Land Use Emphasis, Mixed Use Development Land Use Emphasis, and Community Facilities.

Agricultural and Open Space Land Use Emphasis:



Those unique agricultural production land areas identified within the Comprehensive Land Use Plan which represent a critical component of the total agricultural economy within the region both now and in the foreseeable future. It is anticipated that the residential development would be discouraged and directed toward other geographic areas within the township through the research and application of farm and preservation tools. Agri-business operations would be allowed through the application of the Special Use Permit process.

Rural Land Use Emphasis:



The geographic areas identified within the Comprehensive Land Use Plan which are encouraged to accommodate very low density residential development with an emphasis on open space preservation that supports a rural quality of life environment. Agricultural and agri-business would be encouraged within these geographic areas but with the recognition that additional residential development would be anticipated in the future.

Mixed Land Use Development Emphasis:



As recommended in the Comprehensive Land Use Plan, these areas contain multi-use land development patterns of well planned commercial, office, and other non-residential land uses which provide a direct service to the residents of the township.

Community Facilities and Recreational Land Use Emphasis:



This category of land use identifies existing and future locations for Community Facilities (Township Offices, Governmental Facilities, Etc.) and Recreational Land Uses (Parkland, Golf Courses, Etc.)

IMPLEMENTATION TOOLS

The Comprehensive Plan is a statement, illustrated by graphics, of goal and policy objectives concerning the future physical development of the community. Positive actions are required on the part of both public and private interests, acting in concert, to ensure the Plan's proposals are realized. Private actions include investments in homes, stores, factories, farms, and the care of these investments. Public actions include investments of time, energy, and funds to adopt the Comprehensive Plan and its "Tools" to implement same. Following is a brief explanation of the three major tools utilized to implement the Comprehensive Development Plan.

Zoning Ordinance

The Zoning Ordinance is the major tool available to local government to implement the land use element of a comprehensive plan.

The Township's Comprehensive Development Plan indicates areas for each of the following land use emphasis: agricultural and open space, rural residential and mixed land use development. Each emphasis is located on the future land use map and anticipates different densities. The Comprehensive Plan provides very general land allocations, and on the Zoning Map these general areas are translated into precise land use boundaries through the application of specific land use decisions. The purpose of zoning is to regulate the use of land and buildings to protect areas of uniform development from the adverse effects of disruptive land uses which would tend to lower economic value, efficient operation, and the physical and social amenities of the surrounding properties. A disruptive land use can be residential, commercial, industrial, or rural land use.

The Zoning Ordinance should be thought of as being part of the Comprehensive Plan. Obviously, however, they are distinct legal entities with distinct separate functions. Also, the Comprehensive Plan and Zoning Ordinance are distinctly related due to the very essence of what each accomplishes.

- 1) The Comprehensive Plan sets the framework within which the Zoning Ordinance operates, according to the laws of the State of Michigan, and
- 2) The Zoning Ordinance is one of the tools which enables the Comprehensive Plan to be implemented.

The zoning of a specific property may or may not reflect the existing use. The Plan should act as a guide to the actions of the Planning Commission and the Township Board in reviewing and acting on zoning applications and amendments. The elements of the Comprehensive Plan will be thrown out of balance if the Plan and Zoning Ordinance are not carefully coordinated. The Land Use Plan of the Comprehensive Plan is comprehensive in a way no zoning map can be in that the Land Use Plan relates and coordinates the elements of township development, permitting a well-planned community.

The Zoning Ordinance is adopted by the Clinton County Board of Commissioners on the recommendation of the Clinton County Planning Commission, while the Comprehensive Plan is adopted only by the Clinton County Planning Commission and endorsed by the Board of Commissioners. Although not required by law, this endorsement of the Plan by the elected officials ensures that there is general agreement on the planning and development policies of the township.

Subdivision Regulations

A second tool used to effectuate the Comprehensive Plan is the Subdivision Control Ordinance (SCO). This regulatory device sets minimum standards for the division of land into parcels for residential properties and other uses. The SCO is designed to insure that economic value of sites is not impaired because of unwise land subdivision design (lots, streets, and open space) and construction of substandard streets and utilities which the community will be required to maintain later at taxpayer's expense. Well planned subdivisions don't just happen. The provision of adequate lot sizes, street widths, utilities, and usable dwelling lots, will increase the value of the entire subdivision over the years, allowing for greater economic benefits for the owners and lower maintenance costs for the community. The character of an area is set for many years to come by the initial design of streets and lots and will be a measure of quality, or its opposite, for a subdivision.

Zoning works in conjunction with the SCO to set minimum lot sizes and setbacks. Also, zoning protects subdivisions from harmful land use encroachments adjacent to and within the subdivision which would lessen its desirability as a place to live.

Capital Improvements Program

Public improvements are investments made by the community in facilities which will benefit the township and the county. Public capital improvements include schools, libraries, park and recreation areas, fire and police stations, township offices, storm sewers and the road system. As such, the Capital Improvements Program (CIP) is an essential part of the Comprehensive Plan. It is the purpose of the Comprehensive Plan to provide the basis within which the CIP can be properly executed. The CIP:

1. enables the proper relationship and coordination between one capital improvement and the others;
2. measures the necessity of one versus another; and
3. determines Township's or County's financial capability in any given year to afford these capital improvements.

The CIP establishes a short range priority schedule of needed public improvements in accordance with budgetary capabilities. This tool should be very exhaustive in scope by assessing future needs and programming public improvements. In projecting the needs of the Township within a

CIP, it is necessary to consider the budgetary limitations. The CIP should be planned realistically within budgetary restraints.

The compilation of a Capital Improvements Program is, according to State law, a joint responsibility between the Planning Commission and the elected officials. Specific budgetary actions may become the responsibility of the Township and should be itemized within the CIP document.

The CIP is actually a short-range program which is utilized to effectuate the Comprehensive Plan in increments of five or six years. It indicates improvements which will be required and establishes priorities for the most desirable economical sequence to fulfill the Comprehensive Plan objectives; this is the CIP's whole purpose. But, unlike the zoning ordinance and subdivision control ordinance, which are reviewed and updated every five years, the CIP is reviewed and updated every year and projected again for the next five or six year period.

APPENDICES

BENGAL TOWNSHIP, CLINTON COUNTY
P.A. 116 ENROLLMENT IN ACRES BY SECTION

Section	Acres	% of total acres*	Section	Acres	% of total acres*
1	77	0.66%	19	473	4.03%
2	380	3.24%	20	477	4.07%
3	453	3.86%	21	278	2.37%
4	428	3.65%	22	158	1.35%
5	395	3.37%	23	108	0.92%
6	319	2.72%	24	238	2.03%
7	596	5.08%	25	0	0.00%
8	640	5.40%	26	0	0.00%
9	292	2.49%	27	238	2.03%
10	184	1.57%	28	194	1.65%
11	36	0.31%	29	501	4.27%
12	640	5.40%	30	393	3.35%
13	47	0.40%	31	350	2.98%
14	603	5.14%	32	271	2.31%
15	119	1.01%	33	586	5.00%
16	560	4.77%	34	320	2.73%
17	316	2.69%	35	175	1.49%
18	280	2.39%	36	197	1.68%
Total Acres of Land Enrolled in P.A. 116				11,729	

* Acres enrolled in P.A. 116 in Section/ Acres enrolled in P.A. 116 in Township

BENGAL TOWNSHIP

COMMUNITY QUESTIONNAIRE SUMMARY REPORT

FEBRUARY 2001

COMMUNITY QUESTIONNAIRE SUMMARY REPORT
BENGAL TOWNSHIP, CLINTON COUNTY
December 14, 2000

Please tell us a little bit about yourself. Please choose only *one* in each category:

AGE		
Response	# of Responses	Percent
Under 25	1	0.7
25-44	51	36.7
45-64	59	42.4
65 or Older	28	20.1

RESIDENCE		
Response	# of Responses	Percent
Single Family Home	127	96.9
Duplex or Apartment	1	0.8
Mobile Home	2	1.5

LOCATION		
Response	# of Responses	Percent
Farm	70	51.1
Residential Non-Farm Parcel	67	48.9
Subdivision Lot	0	0
Business	0	0

Years as a Resident		
Response	# of Responses	Percent
0-9 Years	43	30.9
10-19 Years	24	17.3
20 Years and over	63	45.3
Non-Resident	9	6.5

Type of Farming Activity		
Response	# of Responses	Percent
Full Time	21	15.8
Part Time	15	11.3
Landlord	35	26.3
None	62	46.6

Question #1: Farmland is an important part of the township and should be protected from development.		
Response	# of Responses	Percent
(1) Strongly Agree	94	65.7
(2) Agree	29	20.3
(3) Disagree	12	8.4
(4) Strongly Disagree	8	5.6

Question #2: The township should encourage more commercial and industrial growth.

Response	# of Responses	Percent
(1) Strongly Agree	8	5.6
(2) Agree	10	7.0
(3) Disagree	34	23.9
(4) Strongly Disagree	90	63.4

Question #3: Aggressive farmland preservation measures should be researched and adopted.

Response	# of Responses	Percent
(1) Strongly Agree	68	47.9
(2) Agree	43	30.3
(3) Disagree	16	11.3
(4) Strongly Disagree	15	10.6

Question #4: When new subdivisions are proposed, the township and county should encourage creative designs with more open space.

Response	# of Responses	Percent
(1) Strongly Agree	52	38
(2) Agree	46	33.6
(3) Disagree	21	15.3
(4) Strongly Disagree	18	13.1

Question #5: I am satisfied with the fire protection provided.		
Response	# of Responses	Percent
(1) Strongly Agree	47	34.1
(2) Agree	86	62.3
(3) Disagree	3	2.2
(4) Strongly Disagree	2	1.4

Question #6: I am satisfied with the police protection provided.		
Response	# of Responses	Percent
(1) Strongly Agree	39	28.1
(2) Agree	89	64
(3) Disagree	8	5.8
(4) Strongly Disagree	3	2.2

Question #7: I am satisfied with the emergency medical services provided.		
Response	# of Responses	Percent
(1) Strongly Agree	47	33.8
(2) Agree	85	61.2
(3) Disagree	5	3.6
(4) Strongly Disagree	2	1.4

Question #8: I support careful management of growth, even if it means more regulations of my land.

Response	# of Responses	Percent
(1) Strongly Agree	40	28.6
(2) Agree	51	36.4
(3) Disagree	26	18.6
(4) Strongly Disagree	23	16.4

Question #9: The Planning Commission should limit the amount of commercial land use within the township.

Response	# of Responses	Percent
(1) Strongly Agree	76	53.1
(2) Agree	44	30.8
(3) Disagree	14	9.8
(4) Strongly Disagree	9	6.3

Question #10: I think the County Zoning Ordinance should be amended to have more strict development regulation.

Response	# of Responses	Percent
(1) Strongly Agree	57	41.6
(2) Agree	40	29.2
(3) Disagree	28	20.4
(4) Strongly Disagree	12	8.8

Question #11: I oppose additional land use regulation, even if it means development of prime farmland.

Response	# of Responses	Percent
(1) Strongly Agree	17	13.1
(2) Agree	23	17.7
(3) Disagree	41	31.5
(4) Strongly Disagree	49	37.7

Question 12: Consider each of the following areas which the township may choose to address and indicate the important of each on a scale of 1 (urgent) to 4 (not important). Numbers may be used more than once:

Issue (ranking*)	# of Responses	Average Response
Cluster Housing (6)	137	2.15
Water Quality Issues (4)	143	1.74
Zoning Code Enforcement (5)	140	1.92
Road Maintenance (1)	144	1.56
Land for a New Township Hall (7)	141	3.38
Agricultural Preservation (2)	144	1.68
Growth Management (3)	139	1.69

*1 indicates issue ranked most urgent, 7 indicates issue ranked least urgent

Question 13: Rank the following list of land use issues from most important (1) to least important (8). Use each number only once :		
Issue (ranking*)	# of Responses	Average Response
Planning and Growth Management (3)	132	3.53
County Drains (5)	132	4.74
Jobs/Economic Development (8)	131	6.75
Cooperation Between Local Governments (7)	133	5.21
Road System (2)	133	3.08
Environmental Protection (4)	130	4.12
Septic/Sewage Disposal (6)	130	5.08
Agricultural Preservation (1)	132	2.86

*1 indicates issue ranked most important, 8 indicates issue ranked least important

Question 14: Rank the following list of environmental issues from most important (1) to least important (4). Use each number only once:		
Issue (ranking*)	# of Responses	Average Response
Protecting ground water, lakes and streams from contamination and soil erosion (1)	131	1.51
Protecting wildlife habitats and wetlands (3)	131	2.71
Protecting ground water including capping abandoned wells (2)	132	2.70
Developing and enforcing strong, uniform, environmental protection standards (4)	130	2.96

*1 indicates issue ranked most important, 4 indicates issue ranked least important.

Question #15: Bengal Township can best be described as a:

Response	# of Responses	Percent
Farming Community	121	84.6
Rural Residential Community	21	14.7
Suburb	1	0.7

Question #16: In ten years, I would like Bengal Township to be a:

Response	# of Responses	Percent
Farming Community	115	82.1
Rural Residential Community	22	15.7
Suburb	3	2.1

Question #17: In ten years, I think the best use of my property would be:

Response	# of Responses	Percent
Farming Community	62	44
Rural Residential	55	39
Open Space/Wildlife Habitat	23	16.3
Commercial/ Industrial	1	0.7

BENGAL TOWNSHIP SURVEY BREAKOUT

Question #8: I support careful management of growth, even if it means more regulations of my land.

Farming Activity	Strongly Agree	Agree	Disagree	Strongly Disagree	Row Total
Full-Time	5	5	6	4	20 (15.5%)
Part-Time	2	7	3	3	15 (11.6%)
Landlord	14	12	4	5	35 (27.1%)
None	16	23	11	9	59 (45.7%)
Column Total	37 (28.7%)	47 (36.4%)	24 (18.6%)	21 (16.3%)	129 (100%)

Number Missing: 15

Question #11: I oppose additional land use regulation, even if it means development of prime farmland.

Farming Activity	Strongly Agree	Agree	Disagree	Strongly Disagree	Row Total
Full-Time	6	4	3	8	21 (17.4%)
Part-Time	3	3	5	3	14 (11.6%)
Landlord	2	3	11	14	30 (24.8%)
None	3	12	22	19	56 (46.3%)
Column Total	14 (11.6%)	22 (18.2%)	41 (33.9%)	44 (36.4%)	121 (100%)

Number Missing: 23

Question #17: In ten years, I think the best use of my property would be:

Farming Activity	Farming	Rural Residential	Open Space	Commercial	Row Total
Full-Time	17	3	1	0	21 (16.2%)
Part-Time	9	3	3	0	15 (11.5%)
Landlord	21	7	5	1	34 (26.2%)
None	8	39	13	0	60 (46.2%)
Column Total	55 (42.3%)	52 (40.0%)	22 (16.9%)	1 (00.8%)	130 (100%)

Number Missing: 14

SUMMARY OF RESPONSES ON OPEN ENDED QUESTIONS (18-23)

THREE FAVORITE THINGS

Living here, neighbors(5)
Good roads
Rural, Open Space, Free
Excellent ag area, close to Lansing, good local schools
Country living, wildlife, peaceful, (4)
Farming area, real country, very little commercial
Scenic roads, country atmosphere, privacy(8)
Town Hall looks good since improvement, road maintenance, quietness
The people, farming community, smell of mint
Wooded areas and streams, open areas(4)
Mint fields and wildlife
Location, good neighbors, quiet(6)

BIGGEST PROBLEM

Roads Maintenance (24)
Road dust(3)
Condition of gravel roads(3)
Roads in winter
Residential Development(3)
Building Code
Ten acre parcels that use only one acre for residential use(2)
Loss of farmland (4)
Need for some convenience commercial uses
Control of residential building, too haphazard
Lack of resident involvement
Frances Road didn't need to be repaired, homeowners should have gotten a deal on drive approaches
Hatfield/McCoy relationships
Manure smell
Ruining of gravel roads with heavy equipment
Poor and improper distribution of chloride on the roads
Too much farmland and machinery on roads
Too much farm frontage becoming lots
Families selling off farmland
Growth
Gravel trucks
Committee's like this one

Stripping Stoney Creek to be a ditch
Don't spray trees with poison, trim them. Small children may be sprayed.
Trash dumping on gravel roads
Water quality from animal waste
Farmers should provide more habitat at the field edge
More rural police patrols
Lack of snow removal
No zoning(2)
Needs more trees and buildings
Losing farmers on the Board
Why do we need to pay more for fire protection?
I don't think the treatment of roads is necessary as passed in the Nov. 7 millage
Not maintaining roads in winter
Francis Road is a hazard
Too many tax exemptions for large farms which employ 20-30 people
No long term plan
Urban sprawl and housing sprawl
Traffic and speeding(2)
Too conservative
Too many large dairy herds with environmental problems(2)
Conservative leadership focused on farming
Township does not own land on which Town Hall is built
Inadequate police protection

WHAT SERVICES SHOULD BE CREATED?

Curbside recycling(2)
One a year large item pick up(3)
More paved roads(5)
Newsletter(4)
Early snow removal(4)
Road maintenance (6)
Liquid manure disposal
Not to chloride when it is raining
Catch trash dumpers
What services?
Keep advisory committee active
Improved snow removal
Gravel and chloride on a timely basis(2)

WHAT AREAS SHOULD BE ADDRESSED IN THE ZONING ORDINANCE

Housing
Cluster housing(4)

New Town Hall
Do not take away our rights(2)
Ag Preservation (25)
Not allow trailers or multiple home land divisions
Allow for more small businesses
Waste of land for housing development(3)
Limit home building, business building(5)
Limit commercial development(5)
Allow for more mixed use of land
Open spaces
Address what is for the common good
Keep development around St. Johns
Not building in middle of sections(5)
Enforce zoning codes(3)
No trailer parks(3)
Flexibility of ordinances
Limit cluster housing
Strict zoning laws and enforce them
Make it more difficult to build houses on productive land(2)
Strong environmental protection
Ease of land divisions

GENERAL COMMENTS (COMBINED WITH FUTURE ACTIONS)

The factory farms should pay more taxes for road maintenance(2)
Stay the same(2)
No major changes, we like Bengal the way it is...no subdivisions or trailer parks.
Our words don't mean much. Let home owners do what they want, they pay taxes on it.
Improve main and side roads (4)
Farmland preservation (9)
Clinton County is developing quickly. This Township would benefit from the tax base. Keep up or wilt on the vine.
Land sold for new houses should be fully used for something productive.
Lower tax rates(2)
Establish a study committee (Planning Commission)
If I wanted to live in a suburban area I would have stayed in Lansing.
Remodel Town Hall
Not allow anymore development than necessary(2)
Bengal has quality people on the committee
Go slow and plan
Leave Bengal a country environment with no commercial use
Maintain wildlife habitats
Encourage new development
Encourage participation

Have an annual township party to meet neighbors(2)
Farm prices are very low. Who wants to limit our residents life style now or in the future by lowering the value of real estate.
Limit commercial development
Resist change from GM plants expanding
Commodity price supports
Thanks for the survey. Don't change the township too much
A grocery store is a must
Allow nice homes with large lots
If it ain't broke, don't fix it!
Find a way to use liquid manure without air pollution
Would appreciate notice from neighboring farms when chemicals are to be used
More industrial and commercial development(2)
Please pave Parks Road
Have a marriage in thinking between Ag preservation and residential development
I like this survey
Keep up the good work
Rapid development will lead to serious trouble with water supply
Utilize cluster housing with one water well source
Future growth planned and zoned very carefully
I would like to seem Bengal remain an Ag community, but low farm prices may make it impossible
Encourage more housing
More tax paying residents
Encourage cluster housing
Encourage participation in PDR Programs
Township Hall and ease of voting
Support legislation to encourage family farms to stay in family

the owner of the property in the use and benefits of his property, the granting of such permit is required by considerations of justice and equity. Before taking any such action, the board of appeals shall hold a public hearing thereon, at least 10 days' notice of the time and place of which shall be given to the appellant by mail at the address specified by the appellant in his appeal petition. In the event that the board of appeals decides to authorize a building permit and erection, it shall have the power to specify the exact location, ground area, height, and other details and conditions of size, character and construction, and also the duration of the building, structure, or part thereof to be permitted.

P.A.1943, No. 222; C.L.1948, § 125.54; C.L.1970, § 125.54.

125.55. Outside lines shown by appropriate symbols on maps

Sec. 5. The proposed future outside lines of streets, parks, playgrounds and other public grounds shown on any plat certified and adopted as hereinbefore provided, may for convenience be shown, wholly or in part, by appropriate symbols on any official map or other map of the city or village: Provided, That showing such lines on any map shall not in and of itself constitute or be deemed to constitute the opening or establishment of any street or the taking or acceptance of any land for any of the aforesaid purposes.

P.A.1943, No. 222; C.L.1970, § 125.55.

COUNTY PLANNING

Public Act 282, 1945

An act to provide for county planning; the creation, organization, powers and duties of county planning commissions.

125.101. County planning commission; creation; existing commissions

Sec. 1. Any county is hereby authorized and empowered to make, adopt, amend, extend, add to, or carry out a county plan as provided in this act and create by ordinance a planning commission with the powers and duties herein set forth. The planning commission of a county shall be designated the county planning commission.

All county planning commissions organized under Act No. 285 of the Public Acts of 1931, as amended, may immediately reconstitute themselves under this act or may continue to function under the former act as the official

county planning commissions: Provided, That, upon expiration of the terms of existing membership of county planning commissions constituted under Act No. 285 of the Public Acts of 1931, all succeeding appointments shall be made in accordance with the provisions of this act: And provided, That upon passage of this act the powers exercised by county planning commissions so constituted shall be those specified for all county planning commissions in the terms of this act. All powers previously exercised by local planning commissions as provided by Act No. 285 of the Public Acts of 1931, which are in conflict with the provisions of the act herewith adopted, are hereby revoked.

P.A.1945, No. 282, § 1; C.L.1948, § 125.101; C.L.1970, § 125.101.

125.102. Members; appointment; terms; vacancies; compensation; expenses

Sec. 2. The county planning commission shall consist of not less than 5 nor more than 11 members who shall individually be representative of important segments of the economic, governmental, social life, and development of the particular county, in accordance with the major interests as they exist in the county, such as agriculture, recreation, education, government, transportation, industry, and commerce. The county board of commissioners shall establish the basis for representative membership on the commission. A majority of commission members shall not hold another office or position in the county government. The method of appointment and the term of office of members of the commission shall be determined by resolution of a majority of the full membership of the county board of commissioners. Where the commission consists of 5 members, 1 member may be a member of the county board of commissioners elected and serving. Where the commission consists of from 6 to 8 members, 2 members may be members of the county board of commissioners elected and serving. Where the commission consists of from 9 to 11 members, 3 members may be members of the county board of commissioners elected and serving. The term of each appointed member shall be for 3 years, except that upon first appointment of the membership by the board, the terms of office may be varied to permit the establishment of overlapping terms of office and the terms of ex officio members shall correspond to their respective official tenures or as may be determined by the county board. The county board of commissioners shall provide for the filling of a vacancy in the membership of the commission for the unexpired terms and may remove a member for nonperformance of duty or misconduct upon public hearing. Members of the commission may receive the same compensation and mileage, but not to exceed that provided for members of the county board of commissioners except that ex officio members shall

serve without compensation. The members of the commission may be reimbursed for actual, reasonable, and necessary expenses incurred in the discharge of their duties.

P.A.1945, No. 282, § 2; C.L.1948, § 125.102; P.A.1964, No. 12, § 1; C.L.1970, § 125.102; P.A.1976, No. 92.

125.102a. Jurisdiction of county board of auditors in certain counties

Sec. 2a. In counties having a population between 650,000 and 1,000,000 and having a board of county auditors, any county planning commission and any planning department created or existing under the provisions of this act may, by resolution of the board of supervisors, be placed under the jurisdiction of the county board of auditors.

P.A.1945, No. 282, § 2a, added by P.A.1966, No. 91, § 1; C.L.1948, § 125.102a; C.L.1970, § 125.102a.

125.103. Officers; director; information; meetings; records

Sec. 3. The commission shall elect a chairman from its appointive members; and appoint a secretary; and create and fill such other offices as it may determine advisable. The county board may appropriate funds for reimbursement of the members of the commission for such reasonable and necessary expenses as may be deemed necessary for carrying out the powers herein conferred and the duties herein prescribed. The commission may employ a director and such personnel as it may deem necessary, contract for the part time or full time services of planning and other technicians, and pay such other expenses within total funds provided for the commission, as may be deemed necessary. The appointment of employees shall be subject to the same provisions of law as govern other corresponding civil employees of the county. The county planning commission is authorized to make use of the expert advice and information which may be furnished by appropriate federal, state, county, and municipal officials, and departments and agencies having information, maps and data pertinent to county planning. State, county and municipal officials, departments, and agencies are hereby directed to make such information available for the use of the county planning commission as well as authorized to furnish such other technical assistance and advice as they may have available for such purpose. The commission shall hold meetings as often as is determined necessary, but not less than 4 regular meetings shall be held each year. It shall adopt rules for the transaction of business and shall keep a record of its resolutions, transactions, findings, and determinations which record shall be a public record.

P.A.1945, No. 282, § 3; C.L.1948, § 125.103; C.L.1970, § 125.103.

125.104. Development plans; duties of commission; coordinating agency
Sec. 4. It shall be a function of the county planning commission to make a plan for the development of the county, which plan may include planning in cooperation with the constituted authorities for incorporated areas in whole or to the extent to which, in the commission's judgment, they are related to the planning of the unincorporated territory or of the county as a whole. The plan with accompanying maps, plats, charts, and all pertinent and descriptive explanatory matter shall show the planning commission's recommendations for the development of the county. In the preparation of a county development plan, the planning commission shall make careful and comprehensive studies of the existing conditions and probable growth of the territory within its jurisdiction. Such plan shall be made with the purpose of guiding and accomplishing a coordinated, adjusted and harmonious development of the county which will be in accordance with present and future needs for best promoting the health, safety, morals, order, convenience, prosperity and general welfare of the inhabitants, as well as for efficiency and economy in the process of development. It shall be the duty of the county planning commission to: (1) make studies, investigations, and surveys relative to the economic, social and physical development of the county; (2) formulate plans and make recommendations for the most effective economic, social and physical development of the county; (3) cooperate with all departments of the state and federal governments and other public agencies concerned with programs directed towards the economic, social and physical development of the county, and seek the maximum coordination of the county programs of these agencies; (4) consult with representatives of adjacent counties in respect to their planning so that conflicts in over-all county plans may be avoided.

The county planning commission may serve as a coordinating agency for all planning committees and commissions within the county.
P.A.1945, No. 282, § 4; C.L.1948, § 125.104; C.L.1970, § 125.104.

125.104a. County planning commission as metropolitan county planning commission; duties

Sec. 4a. (1) The county planning commission may be designated by the board of supervisors as the metropolitan county planning commission. Any commission so organized shall perform metropolitan and regional planning, whenever necessary or desirable. The commission may engage in comprehensive planning, including but not limited to the following, to the extent directly related to urban needs:

(a) Preparation, as a guide for long-range development, of general physical plans with respect to the pattern and intensity of land use and the provision of public facilities, together with long-range fiscal plans for such development.

(b) Programming of capital improvements based on a determination of relative urgency, together with definitive financing plans for the improvements to be constructed in the earlier years of the program.

(c) Coordination of all related plans of the departments or subdivisions of the government concerned.

(d) Intergovernmental coordination of all related planned activities among the state and local governmental agencies concerned.

(2) In addition to the powers conferred by other provisions of this act, the commission may apply for, receive and accept grants from any governmental agency, or from the federal government, and agree to and comply with such terms and conditions as may be necessary, convenient, or desirable. The commission may do any and all things necessary or desirable to secure the financial aid or cooperation of the federal government in carrying out the functions of the commission, when approved by a 2/3 vote of the board of supervisors.

P.A.1945, No. 282, § 4a, added by P.A.1961, No. 211, § 1; C.L.1948, § 125.104a; C.L.1970, § 125.104a.

125.105. Development plans; adoption of plan; review; adoption by municipality

Sec. 5. It shall be the duty of the county planning commission to adopt a plan for the development of the county. The county plan with accompanying maps, plats, charts, and descriptive and explanatory matter shall show the commission's recommendations for the development of the county. The county planning commission may adopt the plan as a whole by a single resolution, or may by successive resolutions adopt successive parts of the plan, said parts corresponding to major geographical sections of the county or to functional divisions of the subject matter of the plan, and may adopt any amendment or extension thereof or addition thereto. The adoption of the plan, or of any such part, amendment, extension, or addition, shall by resolution be carried by the affirmative votes of not less than a majority of the full membership of the commission after duly advertised public hearing. The resolution shall refer expressly to the maps, plats, charts, and descriptive and explanatory matter intended by the commission to form the whole or part of

the plan, and the action taken shall be recorded on the maps, plats, charts and descriptive and explanatory matter by the identifying signature of the chairman of the commission. Following adoption of the county plan or any part thereof and the certification by the commission to the county board of supervisors of a copy of the county plan, no work shall be initiated on any project involving the expenditure of funds by a county board, department or agency for the acquisition of land, the erection of structures, the extension, construction or improvement of any physical facility by any county board, department or agency unless a full description of the project, its proposed location and extent thereof shall have been submitted to the county planning commission and the report and advice of the commission thereon shall have been received by the county board of supervisors and by the county board, department or agency submitting the proposal. The requirement for planning commission's review shall be deemed to be waived if within 30 days after the proposal has been filed with the commission, the commission fails to furnish in writing, its report and advice upon the proposal. Copies of said report and advice shall be furnished to the county board, department or agency sponsoring the proposal.

Any plan describing the recommended development of an incorporated area shall not be recognized as official plan or part of the official plan for that area unless adopted by the municipality in the manner prescribed for the adoption of such plans by municipalities under the provisions of the state statutes or the local charter.

P.A.1945, No. 282, § 5; C.L.1948, § 125.105; C.L.1970, § 125.105.

125.106. Promoting public interest; conferences; consultation; gifts; transfer of powers of zoning boards to planning commissions; commissioner on zoning board of appeals; commission powers

Sec. 6. (1) The commission shall have the power to promote public interest in an understanding of the plan and to that end may publish and distribute copies of the county plan or of any report thereon and may employ such other means of publicity and education as it may determine advisable. Members of the commission, when duly authorized by the commission, may attend conferences and meetings dealing with planning problems and techniques, and any hearings on pending planning legislation, and the commission may, by resolution, pay the reasonable traveling expenses incident to such attendance. The county planning commission, as a part of its duties, shall consult and advise with public officials and public agencies, other planning commissions or committees, private organizations and agencies, and citizens of the county to develop adequate support and understanding of

the objectives of the county plan. The commission shall have the right to accept and use gifts.

(2) The board of county commissioners, by resolution, may transfer to the planning commission all powers, duties and responsibilities prescribed by Act No. 183 of the Public Acts of 1943, as amended, being sections 125.201 to 125.232 of the Compiled Laws of 1948, for zoning boards created thereunder. If the existing zoning board is nearing completion of its zoning plan, the board of county commissioners shall postpone transfer of the zoning board's powers until completion of the zoning plan, but the postponement shall not exceed 1 year. In a county where the planning commission has been granted powers of the zoning commission, 1 member of the planning commission shall be designated as a member of the zoning board of appeals. In general the commission shall have such powers as may be necessary to fulfill its functions and carry out the purposes of this act.

P.A. 1945, No. 282, § 6; C.L. 1948, § 125.106; C.L. 1970, § 125.107; P.A. 1972, No. 113, § 1.

125.107. Advisory committees or councils

Sec. 7. The county planning commission may appoint advisory committees or councils which may be composed of individuals qualified by experience, training, or interests to assist in the consideration and solution of county problems and representative of the governmental subdivisions within the county, such as townships or incorporated places, and other functional groups or agencies.

P.A. 1945, No. 282, § 7; C.L. 1948, § 125.107; C.L. 1970, § 125.107.

TOWNSHIP PLANNING

Public Act 168, 1959

An act to provide for township planning; for the creation, organization, powers, and duties of township planning commissions; and for the regulation and subdivision of land.

125.321. Definitions

Sec. 1. As used in this act:

(1) "Basic plan" means master plan, general development plan, guide plan, or the plan referred to in Act No. 184 of the Public Acts of 1943, as amended, being sections 125.271 to 125.301 of the Compiled Laws of 1948, being the basis on which the zoning plan is developed.

(2) "Citizen member" means a member of a township planning commission holding no other township office except that he may be a member of a township zoning board of adjustment or appeals.

(3) "Planning commission," means township planning commission. P.A. 1959, No. 168; C.L. 1948, § 125.321; C.L. 1970, § 125.321.

125.322. Purpose of plans

Sec. 2. The purpose of plans prepared pursuant to this act shall be to promote public health, safety and general welfare; to encourage the use of resources in accordance with their character and adaptability; to avoid the overcrowding of land by buildings or people; to lessen congestion on public roads and streets; to facilitate provision for a system of transportation, sewage disposal, safe and adequate water supply, recreation and other public improvements; and to consider the character of each township and its suitability for particular uses judged in terms of such factors as the trend in land and population development. P.A. 1959, No. 168; C.L. 1948, § 125.322; C.L. 1970, § 125.322.

125.323. Township planning commission; creation; referendum; resolution

Sec. 3. (1) The township board of any township may create, by resolution, a township planning commission with power to make, adopt, extend, add to or otherwise amend, and to carry out plans for the unincorporated portions of the township as provided in this act.

(2) The resolution creating a planning commission shall become effective 60 days after publication in a newspaper having general circulation in a township. Within 60 days following the publication of the resolution by the township board, a petition signed by a number of qualified and registered voters residing in the unincorporated portion of the township equal to not less than 8% of the total vote cast for all candidates for governor, at the last preceding general election at which a governor was elected, may be filed with the township clerk praying therein for the submission of the resolution to the electors residing in the unincorporated portion of the township for their approval or rejection. Upon the filing of the petition, the resolution shall not take effect until approved by a majority of the electors voting thereon at the next regular or special election which allows reasonable time for proper notices and printing of ballots or at any

Preliminary Numbers MCD NAME	CENSUS POP 1970	CENSUS POP 1980	CENSUS POP 1990	CENSUS POP 2000	FORECAST POP 2000	CHANGE IN POP 1990 to 2000	POP COUNT vs POP FORECAST CENSUS 2000
Bath Twp.	4,832	5,746	6,387	7,541	6,853	18.07%	10.04%
Bengal Twp.	1,005	1,067	989	1,174	899	18.71%	30.59%
Bingham Twp.	1,561	2,371	2,438	2,776	2,679	13.86%	3.62%
Dallas Twp.	2,182	2,288	2,161	2,323	1,967	7.50%	18.10%
Dewitt City	1,829	3,165	3,964	4,702	4,548	18.62%	3.39%
Dewitt Twp.	9,909	10,038	10,448	12,143	11,750	16.22%	3.34%
Duplain Twp.	2,221	2,330	2,235	2,329	2,113	4.21%	10.22%
Eagle Twp.	1,594	2,060	2,151	2,332	2,215	8.41%	5.28%
East Lansing City (part)	N/A	N/A	N/A	34	N/A		
Essex Twp.	1,435	1,688	1,677	1,812	1,676	8.05%	8.11%
Grand Ledge City (pt. for 2000)	N/A	N/A	N/A	9	N/A		
Greenbush Twp.	1,626	1,929	2,028	2,115	2,056	4.29%	2.87%
Lebanon Twp.	673	697	644	705	564	9.47%	25.00%
Olive Twp.	1,907	2,111	2,122	2,322	2,111	9.43%	10.00%
Ovid Twp.	3,017	3,241	3,105	3,490	3,056	12.40%	14.20%
Riley Twp.	1,222	1,547	1,543	1,767	1,456	14.52%	21.36%
St. Johns City	6,672	7,376	7,392	7,485	7,470	1.26%	0.20%
Victor Twp.	1,522	2,287	2,784	3,275	2,975	17.64%	10.08%
Watertown Twp.	3,146	3,602	3,731	4,162	4,028	11.55%	3.33%
Westphalia Twp.	2,139	2,350	2,099	2,257	2,268	7.53%	-0.49%
CLINTON COUNTY	48,492	55,893	57,898	64,753	60,684	11.84%	6.71%
Bellevue Twp	2,424	2,725	2,938	3,144	2,943	7.01%	6.83%
Benton Twp.	1,754	2,405	2,528	2,712	2,623	7.28%	3.39%
Brookfield Twp.	1,113	1,380	1,331	1,429	1,246	7.36%	14.69%
Carmel Twp	1,539	2,168	2,433	2,626	2,515	7.93%	4.41%
Charlotte City	8,244	8,251	8,083	8,389	8,961	3.79%	-6.38%
Chester Twp.	1,205	1,622	1,602	1,778	1,546	10.99%	15.01%
Delta Twp	17,396	23,822	26,129	29,682	29,954	13.60%	-0.91%
Eaton Twp.	2,104	3,315	3,492	4,278	3,728	22.51%	14.75%
Eaton Rapids City	4,494	4,510	4,695	5,330	4,802	13.53%	11.00%
Eaton Rapids Twp.	2,066	2,823	3,003	3,821	3,157	27.24%	21.03%
Grand Ledge City (pt. for 2000)	6,032	6,920	7,562	7,804	7,650	3.20%	2.01%
Hamlin Twp.	1,621	2,195	2,351	2,953	2,406	25.61%	22.73%
Kalamo Twp.	1,310	1,683	1,665	1,742	1,630	4.62%	6.87%
Lansing City (pt)	1,192	4,440	4,621	4,807	4,802	4.03%	0.10%
Oliver City	1,629	1,604	1,604	1,758	1,501	9.60%	17.12%
Oneida Twp.	2,635	3,378	3,245	3,703	3,587	14.11%	3.23%
Pottersville City	1,280	1,502	1,523	2,168	1,660	42.35%	30.60%
Roxand Twp.	1,671	1,975	1,903	1,903	1,796	0.00%	5.96%
Sunfield Twp.	1,710	1,998	2,086	2,177	2,108	4.36%	3.27%
Vermontville Twp.	1,734	1,942	1,896	2,100	1,826	10.76%	15.01%
Walton Twp.	1,256	1,601	1,729	2,011	1,764	16.31%	14.00%
Windsor Twp.	4,483	6,078	6,460	7,340	6,701	13.62%	9.54%
EATON COUNTY	68,892	88,337	92,879	103,655	98,906	11.60%	4.80%
Alaiedon Twp.	2,487	2,845	3,173	3,498	3,260	10.24%	7.30%
Aurelius Twp.	1,987	2,460	2,686	3,318	2,742	23.53%	21.01%
Bunker Hill Twp.	1,464	1,794	1,888	1,979	1,956	4.82%	1.18%
Delhi Twp.	13,795	17,144	19,190	22,569	21,158	17.61%	6.67%
East Lansing City (pt. for 2000)	47,964	51,392	50,677	46,491	52,101	-8.26%	-10.77%
Ingham Twp.	1,498	1,974	1,942	2,061	1,863	6.13%	10.63%
Lansing City (pt)	130,211	125,974	126,379	114,321	123,936	-9.54%	-7.76%
Lansing Twp.	11,270	10,097	8,919	8,458	8,679	-5.17%	-2.55%
Leroy Twp	2,598	3,413	3,561	3,653	3,684	2.58%	-0.84%
Leslie City		2,110	2,180	2,044	2,162	-6.24%	-5.46%
Leslie Twp.	3,612	2,190	2,128	2,327	2,046	9.35%	13.73%
Locke Twp.	1,370	1,456	1,521	1,671	1,596	9.86%	4.70%
Mason City	5,468	6,019	6,768	6,714	7,049	-0.80%	-4.75%
Meridian Twp.	23,817	28,754	35,644	39,116	38,231	9.74%	2.31%
Onondaga Twp.	1,981	2,299	2,444	2,958	2,504	21.03%	18.13%
Stockbridge Twp.	2,526	2,914	2,971	3,435	3,022	15.62%	13.67%
Vevay Twp.	1,916	3,113	3,668	3,614	3,863	-1.47%	-6.45%
Wheatfield Twp.	1,177	1,523	1,571	1,641	1,623	4.46%	1.11%
White Oak Twp.	875	1,096	1,074	1,177	1,048	9.59%	12.31%
Williamston City	2,600	2,981	2,922	3,441	2,892	17.76%	18.98%
Williamston Twp.	2,847	3,972	4,285	4,834	4,486	12.81%	7.76%
INGHAM COUNTY	261,463	275,520	285,591	279,320	289,901	-2.20%	-3.65%
TRI-COUNTY REGION	378,847	419,750	436,368	447,728	449,491	2.60%	-0.39%

* Villages Included In Their Respective Townships

** Formula for Population Change: (POP 2000-POP 1990)/POP 1990

*** Formula for Difference Between 2000 POP Count and Projected 2000 POP: (2000 POP-2000 FORECAST)/ 2000 FORECAST

This Report Provided by Tri-County Regional Planning Commission (Source US Census Bureau, 2000 Census of Population and Housing)

Contact: Daniel Dillingier, Information Systems Planner, Tri-County Regional Planning Commission (517) 393-0342 Fax: (517) 393-4424 e-mail: ddillingier@tri-co.org

Clinton County	Population											
	1985	2000	2005	2010	2015	2020	2025	2030	2035	1995-2035 % Growth		
MCD												
Bath Twp	6,492	7,675	9,782	10,212	10,871	11,265	11,502	11,847	11,818	82%		
Bengal Twp	1,085	1,174	1,302	1,370	1,466	1,659	1,625	1,683	1,750	61%		
Birgham Twp	2,483	2,776	3,104	3,365	3,969	4,597	5,071	5,485	5,955	147%		
Dallas Twp	1,339	1,187	1,287	1,328	1,423	1,612	1,570	1,614	1,669	25%		
De Witt City	4,513	4,702	4,878	5,371	5,459	5,529	5,542	5,536	5,547	23%		
De Witt Twp	11,180	12,144	13,878	14,290	14,710	15,035	15,159	15,191	15,313	37%		
Duplain Twp	1,403	1,274	1,436	1,541	1,685	1,823	1,927	2,011	2,110	50%		
Eagle Twp	2,229	2,202	3,452	4,649	5,005	5,234	5,406	5,551	5,712	156%		
Eagle Village	127	130	128	126	124	123	121	120	118	-7%		
Elsie	1,013	1,055	1,064	1,067	1,078	1,088	1,092	1,095	1,101	8%		
Essex Twp	1,095	1,169	1,360	1,464	1,610	1,752	1,860	1,954	2,055	88%		
Fowler	900	1,136	1,157	1,160	1,170	1,181	1,185	1,186	1,189	32%		
Greenbush Twp	2,226	2,115	2,325	2,475	2,667	2,858	3,008	3,137	3,283	47%		
Lebanon Twp	705	705	811	855	916	975	1,022	1,058	1,097	56%		
Maple Rapids	718	643	653	657	672	686	696	703	712	-1%		
Olpe Twp	2,330	2,322	2,667	2,827	3,035	3,237	3,387	3,508	3,643	56%		
Ovid Twp	1,825	1,978	2,210	2,384	2,628	2,867	3,041	3,186	3,353	84%		
Ovid Village	1,517	1,512	1,540	1,536	1,537	1,537	1,534	1,628	1,625	1%		
Riley Twp	1,694	1,767	2,005	2,143	2,320	2,495	2,634	2,751	2,880	70%		
St. Johns City	7,854	7,484	7,648	7,890	7,988	8,088	8,149	8,188	8,252	5%		
Victor Twp	3,056	3,276	3,735	4,067	4,479	4,886	5,223	5,523	5,848	91%		
Watertown Twp	4,008	4,171	5,093	5,587	5,833	6,071	6,245	6,386	6,543	63%		
Westphalia Twp	1,448	1,381	1,499	1,586	1,714	1,837	1,920	1,986	2,065	43%		
Westphalia Village	762	876	908	906	912	917	917	916	916	20%		
Total Clinton County	62,012	64,754	73,892	78,558	83,292	87,152	89,836	91,943	94,454	52%		

County	Population									1995-2035 %Growth
	1995	2000	2005	2010	2015	2020	2025	2030	2035	
Clinton	62,012	64,754	73,892	78,858	83,292	87,152	89,836	91,943	94,454	52%
Eaton	98,952	103,654	112,036	117,774	124,269	130,869	135,250	138,304	142,123	44%
Higham	282,763	279,326	282,890	301,361	308,566	316,393	324,561	331,458	338,605	20%
Total Tri-County	443,727	447,734	478,818	497,993	516,127	534,414	549,647	561,705	575,182	30%